FLD axioms

FLD001-0.ax Ordered field axioms (axiom formulation glxx)
(defined(x) and defined(y) and defined(z)) $\Rightarrow$ $x+(y+z)=(x+y)+z$ cnf(associativity_addition, axiom)
defined(x) $\Rightarrow$ $0+x=x$ cnf(existence_of_identity_addition, axiom)
defined(x) $\Rightarrow$ $x+-x=0$ cnf(existence_of_inverse_addition, axiom)
(defined(x) and defined(y)) $\Rightarrow$ $x+y=y+x$ cnf(commutativity_addition, axiom)
(defined(x) and defined(y) and defined(z)) $\Rightarrow$ $x\cdot(y\cdot z)=(x\cdot y)\cdot z$ cnf(associativity_multiplication, axiom)
defined(x) $\Rightarrow$ $1\cdot x=x$ cnf(existence_of_identity_multiplication, axiom)
defined(x) $\Rightarrow$ ($x\cdot x^{-1}=1$ or $x=0$) cnf(existence_of_inverse_multiplication, axiom)
(defined(x) and defined(y)) $\Rightarrow$ $x\cdot y=y\cdot x$ cnf(commutativity_multiplication, axiom)
(defined(x) and defined(y) and defined(z)) $\Rightarrow$ $x\cdot z+y\cdot z=(x+y)\cdot z$ cnf(distributivity, axiom)
(defined(x) and defined(y)) $\Rightarrow$ defined($x+y$) cnf(well_definedness_of_addition, axiom)
defined(0) cnf(well_definedness_of_additive_identity, axiom)
defined(x) $\Rightarrow$ defined($-x$) cnf(well_definedness_of_additive_inverse, axiom)
(defined(x) and defined(y)) $\Rightarrow$ defined($x\cdot y$) cnf(well_definedness_of_multiplication, axiom)
defined(1) cnf(well_definedness_of_multiplicative_identity, axiom)
defined(x) $\Rightarrow$ (defined(x^{-1}) or $x=0$) cnf(well_definedness_of_multiplicative_inverse, axiom)
($x\leq y$ and $y\leq x$) $\Rightarrow$ $x=y$ cnf(antisymmetry_of_order_relation, axiom)
($x\leq y$ and $y\leq z$) $\Rightarrow$ $x\leq z$ cnf(transitivity_of_order_relation, axiom)
(defined(x) and defined(y)) $\Rightarrow$ ($x\leq y$ or $y\leq x$) cnf(totality_of_order_relation, axiom)
(defined(z) and $x\leq y$) $\Rightarrow$ $x+z\leq y+z$ cnf(compatibility_of_order_relation_and_addition, axiom)
($0\leq y$ and $0\leq z$) $\Rightarrow$ $0\leq y\cdot z$ cnf(compatibility_of_order_relation_and_multiplication, axiom)
defined(x) $\Rightarrow$ $x=x$ cnf(reflexivity_of_equality, axiom)
$y=x$ $\Rightarrow$ $x=y$ cnf(symmetry_of_equality, axiom)
($x=y$ and $y=z$) $\Rightarrow$ $x=z$ cnf(transitivity_of_equality, axiom)
(defined(z) and $x=y$) $\Rightarrow$ $x+z=y+z$ cnf(compatibility_of_equality_and_addition, axiom)
(defined(z) and $x=y$) $\Rightarrow$ $x\cdot z=y\cdot z$ cnf(compatibility_of_equality_and_multiplication, axiom)
($x\leq z$ and $x=y$) $\Rightarrow$ $y\leq z$ cnf(compatibility_of_equality_and_order_relation, axiom)
$\neg\, 0=1$ cnf(different_identities, axiom)

FLD002-0.ax Ordered field axioms (axiom formulation re)
($x+y=u$ and $y+z=v$ and $u+z=w$) $\Rightarrow$ $x+v=w$ cnf(associativity_addition$_1$, axiom)
($x+y=u$ and $y+z=v$ and $x+v=w$) $\Rightarrow$ $u+z=w$ cnf(associativity_addition$_2$, axiom)
defined(x) $\Rightarrow$ $0+x=x$ cnf(existence_of_identity_addition, axiom)
defined(x) $\Rightarrow$ $-x+x=0$ cnf(existence_of_inverse_addition, axiom)
$x+y=z$ $\Rightarrow$ $y+x=z$ cnf(commutativity_addition, axiom)
($x\cdot y=u$ and $y\cdot z=v$ and $u\cdot z=w$) $\Rightarrow$ $x\cdot v=w$ cnf(associativity_multiplication$_1$, axiom)
($x\cdot y=u$ and $y\cdot z=v$ and $x\cdot v=w$) $\Rightarrow$ $u\cdot z=w$ cnf(associativity_multiplication$_2$, axiom)
defined(x) $\Rightarrow$ $1\cdot x=x$ cnf(existence_of_identity_multiplication, axiom)
defined(x) $\Rightarrow$ ($x^{-1}\cdot x=1$ or $0+x=0$) cnf(existence_of_inverse_multiplication, axiom)
$x\cdot y=z$ $\Rightarrow$ $y\cdot x=z$ cnf(commutativity_multiplication, axiom)
($x+y=a$ and $a\cdot z=b$ and $x\cdot z=c$ and $y\cdot z=d$) $\Rightarrow$ $c+d=b$ cnf(distributivity$_1$, axiom)
($x+y=a$ and $x\cdot z=c$ and $y\cdot z=d$ and $c+d=b$) $\Rightarrow$ $a\cdot z=b$ cnf(distributivity$_2$, axiom)
(defined(x) and defined(y)) $\Rightarrow$ defined($x+y$) cnf(well_definedness_of_addition, axiom)
defined(0) cnf(well_definedness_of_additive_identity, axiom)
defined(x) $\Rightarrow$ defined($-x$) cnf(well_definedness_of_additive_inverse, axiom)
(defined(x) and defined(y)) $\Rightarrow$ defined($x\cdot y$) cnf(well_definedness_of_multiplication, axiom)
defined(1) cnf(well_definedness_of_multiplicative_identity, axiom)
defined(x) $\Rightarrow$ (defined(x^{-1}) or $0+x=0$) cnf(well_definedness_of_multiplicative_inverse, axiom)
(defined(x) and defined(y)) $\Rightarrow$ $x+y=x+y$ cnf(totality_of_addition, axiom)
(defined(x) and defined(y)) $\Rightarrow$ $x\cdot y=x\cdot y$ cnf(totality_of_multiplication, axiom)
($x\leq y$ and $y\leq x$) $\Rightarrow$ $0+x=y$ cnf(antisymmetry_of_order_relation, axiom)
($x\leq y$ and $y\leq z$) $\Rightarrow$ $x\leq z$ cnf(transitivity_of_order_relation, axiom)
(defined(x) and defined(y)) $\Rightarrow$ ($x\leq y$ or $y\leq x$) cnf(totality_of_order_relation, axiom)
($x\leq y$ and $x+z=u$ and $y+z=v$) $\Rightarrow$ $u\leq v$ cnf(compatibility_of_order_relation_and_addition, axiom)
($0\leq x$ and $0\leq y$ and $x\cdot y=z$) $\Rightarrow$ $0\leq z$ cnf(compatibility_of_order_relation_and_multiplication, axiom)
$\neg\, 0+0=1$ cnf(different_identities, axiom)

FLD problems

FLD001-3.p Transformation additive relation -→ multiplicative relation
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 + a{=}b$ cnf(sum$_3$, hypothesis)
$\neg\, 1 \cdot a{=}b$ cnf(not_product$_4$, negated_conjecture)

FLD002-3.p Transformation multiplicative relation -→ additive relation
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$1 \cdot a{=}b$ cnf(product$_3$, hypothesis)
$\neg\, 0 + a{=}b$ cnf(not_sum$_4$, negated_conjecture)

FLD003-1.p Elimination of an additive term/inverse term - pair
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, a + (b + -b){=}a$ cnf(add_not_equal_to_a$_3$, negated_conjecture)

FLD004-1.p Elimination of an multiplicative term/inverse term - pair
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_3$, negated_conjecture)
$\neg\, a \cdot (b \cdot b^{-1}){=}a$ cnf(multiply_not_equal_to_a$_4$, negated_conjecture)

FLD005-1.p Every linear equation in the additive group has a solution
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, a + x{=}b$ cnf(add_not_equal_to_b$_3$, negated_conjecture)

FLD005-3.p Every linear equation in the additive group has a solution
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, a + x{=}b$ cnf(not_sum$_3$, negated_conjecture)

FLD006-1.p In the additive group it holds: inverse(identity)=identity
include('Axioms/FLD001-0.ax')
$\neg\, -0{=}0$ cnf(additive_inverse_not_equal_to_additive_identity$_1$, negated_conjecture)

FLD006-3.p In the additive group it holds: inverse(identity)=identity
include('Axioms/FLD002-0.ax')
$\neg\, 0 + -0{=}0$ cnf(not_sum$_1$, negated_conjecture)

FLD007-1.p The additive inverse fulfills the involution property
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, -(-a){=}a$ cnf(additive_inverse_not_equal_to_a$_2$, negated_conjecture)

FLD007-3.p The additive inverse fulfills the involution property
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, 0 + -(-a){=}a$ cnf(not_sum$_2$, negated_conjecture)

FLD008-1.p Compatibility of operation and inverse in the additive group
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, -(a + b){=}-a + -b$ cnf(additive_inverse_not_equal_to_add$_3$, negated_conjecture)

FLD008-2.p Compatibility of operation and inverse in the additive group

include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$a + b = c$ cnf(add_equals_c_5, negated_conjecture)
$-a + -b = d$ cnf(add_equals_d_6, negated_conjecture)
$\neg -c = d$ cnf(additive_inverse_not_equal_to_d_7, negated_conjecture)

FLD008-3.p Compatibility of operation and inverse in the additive group
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, 0 + -(a + b) = -a + -b$ cnf(not_sum_3, negated_conjecture)

FLD008-4.p Compatibility of operation and inverse in the additive group
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$a + b = c$ cnf(sum_5, negated_conjecture)
$-a + -b = d$ cnf(sum_6, negated_conjecture)
$\neg\, 0 + -c = d$ cnf(not_sum_7, negated_conjecture)

FLD009-1.p Linear equations in the multiplicative group have a solution
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, a = 0$ cnf(a_not_equal_to_additive_$\mathrm{identity}_3$, negated_conjecture)
$\neg\, a \cdot x = b$ cnf(multiply_not_equal_to_b_4, negated_conjecture)

FLD009-3.p Linear equations in the multiplicative group have a solution
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, 0 + a = 0$ cnf(not_sum_3, negated_conjecture)
$\neg\, a \cdot x = b$ cnf(not_$\mathrm{product}_4$, negated_conjecture)

FLD010-1.p In the multiplicative group inverse(identity)=identity
include('Axioms/FLD001-0.ax')
$\neg\, 1^{-1} = 1$ cnf(multiplicative_inv_not_equal_to_multiplicative_id_2, negated_conjecture)

FLD010-3.p In the multiplicative group inverse(identity)=identity
include('Axioms/FLD002-0.ax')
$\neg\, 0 + 1 = 0$ cnf(not_sum_1, negated_conjecture)
$\neg\, 1 \cdot 1^{-1} = 1$ cnf(not_$\mathrm{product}_2$, negated_conjecture)

FLD010-5.p In the multiplicative group inverse(identity)=identity
include('Axioms/FLD002-0.ax')
$\neg\, 0 + 1 = 0$ cnf(not_sum_1, negated_conjecture)
$\neg\, 0 + 1^{-1} = 1$ cnf(not_sum_2, negated_conjecture)

FLD011-1.p The multiplicative inverse fulfills the involution property
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, a = 0$ cnf(a_not_equal_to_additive_$\mathrm{identity}_2$, negated_conjecture)
$\neg\, (a^{-1})^{-1} = a$ cnf(multiplicative_inverse_not_equal_to_a_3, negated_conjecture)

FLD011-3.p The multiplicative inverse fulfills the involution property
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, 0 + a = 0$ cnf(not_sum_2, negated_conjecture)
$\neg\, 1 \cdot (a^{-1})^{-1} = a$ cnf(not_$\mathrm{product}_3$, negated_conjecture)

FLD012-1.p Compatibility of operation and inverse in multiplicative group
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg a{=}0$ cnf(a_not_equal_to_additive_identity$_3$, negated_conjecture)
$\neg b{=}0$ cnf(b_not_equal_to_additive_identity$_4$, negated_conjecture)
$\neg (a \cdot b)^{-1}{=}a^{-1} \cdot b^{-1}$ cnf(multiplicative_inverse_not_equal_to_multiply$_5$, negated_conjecture)

FLD012-2.p Compatibility of operation and inverse in multiplicative group
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$\neg a{=}0$ cnf(a_not_equal_to_additive_identity$_5$, negated_conjecture)
$\neg b{=}0$ cnf(b_not_equal_to_additive_identity$_6$, negated_conjecture)
$a \cdot b{=}u$ cnf(multiply_equals_u$_7$, negated_conjecture)
$a^{-1} \cdot b^{-1}{=}v$ cnf(multiply_equals_v$_8$, negated_conjecture)
$\neg u^{-1}{=}v$ cnf(multiplicative_inverse_not_equal_to_v$_9$, negated_conjecture)

FLD012-3.p Compatibility of operation and inverse in multiplicative group
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg 0 + a{=}0$ cnf(not_sum$_3$, negated_conjecture)
$\neg 0 + b{=}0$ cnf(not_sum$_4$, negated_conjecture)
$\neg 1 \cdot (a \cdot b)^{-1}{=}a^{-1} \cdot b^{-1}$ cnf(not_product$_5$, negated_conjecture)

FLD012-4.p Compatibility of operation and inverse in multiplicative group
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$\neg 0 + a{=}0$ cnf(not_sum$_5$, negated_conjecture)
$\neg 0 + b{=}0$ cnf(not_sum$_6$, negated_conjecture)
$a \cdot b{=}u$ cnf(product$_7$, negated_conjecture)
$a^{-1} \cdot b^{-1}{=}v$ cnf(product$_8$, negated_conjecture)
$\neg 1 \cdot u^{-1}{=}v$ cnf(not_product$_9$, negated_conjecture)

FLD013-1.p The resulting equation of the summation of two equations
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$a{=}b$ cnf(a_equals_b$_5$, negated_conjecture)
$c{=}d$ cnf(c_equals_d$_6$, negated_conjecture)
$\neg a + c{=}d + b$ cnf(add_not_equal_to_add$_7$, negated_conjecture)

FLD013-2.p The resulting equation of the summation of two equations
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$a{=}b$ cnf(a_equals_b$_6$, negated_conjecture)
$c{=}d$ cnf(c_equals_d$_7$, negated_conjecture)
$a + c{=}u$ cnf(add_equals_u$_8$, negated_conjecture)
$\neg d + b{=}u$ cnf(add_not_equal_to_u$_9$, negated_conjecture)

FLD013-3.p The resulting equation of the summation of two equations

include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$0 + a = b$ cnf(sum_5, negated_conjecture)
$0 + c = d$ cnf(sum_6, negated_conjecture)
$\neg\, a + c = d + b$ cnf(not_sum_7, negated_conjecture)

FLD013-4.p The resulting equation of the summation of two equations
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$0 + a = b$ cnf(sum_6, negated_conjecture)
$0 + c = d$ cnf(sum_7, negated_conjecture)
$a + c = u$ cnf(sum_8, negated_conjecture)
$\neg\, d + b = u$ cnf(not_sum_9, negated_conjecture)

FLD013-5.p The resulting equation of the summation of two equations
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$0 + a = b$ cnf(sum_7, negated_conjecture)
$0 + c = d$ cnf(sum_8, negated_conjecture)
$a + c = u$ cnf(sum_9, negated_conjecture)
$d + b = v$ cnf(sum_{10}, negated_conjecture)
$\neg\, 0 + u = v$ cnf(not_sum_{11}, negated_conjecture)

FLD014-1.p Compatibility of additive inverses with the equality, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$a = b$ cnf(a_equals_b_3, negated_conjecture)
$\neg - a = - b$ cnf($\text{additive\_inverse\_not\_equal\_to\_additive\_inverse}_4$, negated_conjecture)

FLD014-3.p Compatibility of additive inverses with the equality, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 + a = b$ cnf(sum_3, negated_conjecture)
$\neg\, 0 + -a = - b$ cnf(not_sum_4, negated_conjecture)

FLD015-1.p Compatibility of additive inverses with the equality, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$-a = - b$ cnf($\text{additive\_inverse\_equals\_additive\_inverse}_3$, negated_conjecture)
$\neg\, a = b$ cnf($\text{a\_not\_equal\_to\_b}_4$, negated_conjecture)

FLD015-3.p Compatibility of additive inverses with the equality, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 + -a = - b$ cnf(sum_3, negated_conjecture)
$\neg\, 0 + a = b$ cnf(not_sum_4, negated_conjecture)

FLD016-1.p Solutions of linear equations in the additive group are unique
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$a + u{=}b$ cnf(add_equals_b$_5$, negated_conjecture)
$a + v{=}b$ cnf(add_equals_b$_6$, negated_conjecture)
$\neg\, u{=}v$ cnf(u_not_equal_to_v$_7$, negated_conjecture)

FLD016-3.p Solutions of linear equations in the additive group are unique
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$a + u{=}b$ cnf(sum$_5$, negated_conjecture)
$a + v{=}b$ cnf(sum$_6$, negated_conjecture)
$\neg\, 0 + u{=}v$ cnf(not_sum$_7$, negated_conjecture)

FLD016-5.p Solutions of linear equations in the additive group are unique
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
defined(q) cnf(q_is_defined, hypothesis)
defined(r) cnf(r_is_defined, hypothesis)
$a + u{=}q$ cnf(sum$_6$, negated_conjecture)
$a + v{=}r$ cnf(sum$_7$, negated_conjecture)
$0 + q{=}r$ cnf(sum$_8$, negated_conjecture)
$\neg\, 0 + u{=}v$ cnf(not_sum$_9$, negated_conjecture)

FLD017-1.p Substitution of an element in additive equations
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(x) cnf(x_is_defined, hypothesis)
$a{=}x$ cnf(a_equals_x$_5$, negated_conjecture)
$a + b{=}c$ cnf(add_equals_c$_6$, negated_conjecture)
$\neg\, x + b{=}c$ cnf(add_not_equal_to_c$_7$, negated_conjecture)

FLD017-3.p Substitution of an element in additive equations
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(x) cnf(x_is_defined, hypothesis)
$0 + a{=}x$ cnf(sum$_5$, negated_conjecture)
$a + b{=}c$ cnf(sum$_6$, negated_conjecture)
$\neg\, x + b{=}c$ cnf(not_sum$_7$, negated_conjecture)

FLD018-1.p If a is zero, the additive inverse of a is also zero
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$a{=}0$ cnf(a_equals_additive_identity$_2$, negated_conjecture)
$\neg - a{=}0$ cnf(additive_inverse_not_equal_to_additive_identity$_3$, negated_conjecture)

FLD018-3.p If a is zero, the additive inverse of a is also zero
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$0 + a{=}0$ cnf(sum$_2$, negated_conjecture)
$\neg\, 0 + {-a}{=}0$ cnf(not_sum$_3$, negated_conjecture)

FLD019-1.p If the additive inverse of a is zero, a itself is zero
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$-a$=0 cnf(additive_inverse_equals_additive_identity$_2$, negated_conjecture)
$\neg a$=0 cnf(a_not_equal_to_additive_identity$_3$, negated_conjecture)

FLD019-3.p If the additive inverse of a is zero, a itself is zero
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$0 + -a$=0 cnf(sum$_2$, negated_conjecture)
$\neg\, 0 + a$=0 cnf(not_sum$_3$, negated_conjecture)

FLD020-1.p The additive identity is unique
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(m) cnf(m_is_defined, hypothesis)
$m + a$=a cnf(add_equals_a$_3$, negated_conjecture)
$\neg m$=0 cnf(m_not_equal_to_additive_identity$_4$, negated_conjecture)

FLD020-3.p The additive identity is unique
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(m) cnf(m_is_defined, hypothesis)
$m + a$=a cnf(sum$_3$, negated_conjecture)
$\neg\, 0 + m$=0 cnf(not_sum$_4$, negated_conjecture)

FLD021-1.p Every element equal to zero is an additive identity
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(m) cnf(m_is_defined, hypothesis)
m=0 cnf(m_equals_additive_identity$_3$, negated_conjecture)
$\neg m + a$=a cnf(add_not_equal_to_a$_4$, negated_conjecture)

FLD021-3.p Every element equal to zero is an additive identity
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(m) cnf(m_is_defined, hypothesis)
$0 + m$=0 cnf(sum$_3$, negated_conjecture)
$\neg m + a$=a cnf(not_sum$_4$, negated_conjecture)

FLD022-1.p Elimination of a summation in an equation
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$a + c$=$b + c$ cnf(add_equals_add$_4$, negated_conjecture)
$\neg a$=b cnf(a_not_equal_to_b$_5$, negated_conjecture)

FLD022-3.p Elimination of a summation in an equation
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$a + c$=u cnf(sum$_5$, negated_conjecture)
$b + c$=u cnf(sum$_6$, negated_conjecture)
$\neg\, 0 + a$=b cnf(not_sum$_7$, negated_conjecture)

FLD023-1.p Side Change of a term in an equation, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
a=b cnf(a_equals_b$_3$, negated_conjecture)
$\neg\, 0$=$b + -a$ cnf(additive_identity_not_equal_to_add$_4$, negated_conjecture)

FLD023-3.p Side Change of a term in an equation, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 + a{=}b$ cnf(sum_3, negated_conjecture)
$\neg\, b + -a{=}0$ cnf(not_sum_4, negated_conjecture)

FLD024-1.p Side Change of a term in an equation, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0{=}b + -a$ cnf($additive\_identity\_equals\_add_3$, negated_conjecture)
$\neg\, a{=}b$ cnf($a\_not\_equal\_to\_b_4$, negated_conjecture)

FLD024-3.p Side Change of a term in an equation, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$b + -a{=}0$ cnf(sum_3, negated_conjecture)
$\neg\, 0 + a{=}b$ cnf(not_sum_4, negated_conjecture)

FLD025-1.p The resulting equation of a multiplication of two equations
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$a{=}b$ cnf($a\_equals\_b_5$, negated_conjecture)
$c{=}d$ cnf($c\_equals\_d_6$, negated_conjecture)
$\neg\, a \cdot c{=}d \cdot b$ cnf($multiply\_not\_equal\_to\_multiply_7$, negated_conjecture)

FLD025-2.p The resulting equation of a multiplication of two equations
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$a{=}b$ cnf($a\_equals\_b_7$, negated_conjecture)
$c{=}d$ cnf($c\_equals\_d_8$, negated_conjecture)
$a \cdot c{=}u$ cnf($multiply\_equals\_u_9$, negated_conjecture)
$d \cdot b{=}v$ cnf($multiply\_equals\_v_{10}$, negated_conjecture)
$\neg\, v{=}u$ cnf($v\_not\_equal\_to\_u_{11}$, negated_conjecture)

FLD025-3.p The resulting equation of a multiplication of two equations
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$1 \cdot a{=}b$ cnf($product_5$, negated_conjecture)
$1 \cdot c{=}d$ cnf($product_6$, negated_conjecture)
$\neg\, d \cdot b{=}a \cdot c$ cnf($not\_product_7$, negated_conjecture)

FLD025-4.p The resulting equation of a multiplication of two equations
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$1 \cdot a{=}b$ cnf($product_6$, negated_conjecture)

$1 \cdot c = d$ cnf(product$_7$, negated_conjecture)
$a \cdot c = u$ cnf(product$_8$, negated_conjecture)
$\neg\, d \cdot b = u$ cnf(not_product$_9$, negated_conjecture)

FLD025-5.p The resulting equation of a multiplication of two equations
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$1 \cdot a = b$ cnf(product$_7$, negated_conjecture)
$1 \cdot c = d$ cnf(product$_8$, negated_conjecture)
$a \cdot c = u$ cnf(product$_9$, negated_conjecture)
$d \cdot b = v$ cnf(product$_{10}$, negated_conjecture)
$\neg\, 1 \cdot u = v$ cnf(not_product$_{11}$, negated_conjecture)

FLD026-1.p Compatibility of multiplicative inverses with equality
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, a = 0$ cnf(a_not_equal_to_additive_identity$_3$, negated_conjecture)
$a = b$ cnf(a_equals_b$_4$, negated_conjecture)
$\neg\, a^{-1} = b^{-1}$ cnf(multiplicative_inverses_not_equal, negated_conjecture)

FLD026-3.p Compatibility of multiplicative inverses with equality
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, 0 + a = 0$ cnf(not_sum$_3$, negated_conjecture)
$1 \cdot a = b$ cnf(product$_4$, negated_conjecture)
$\neg\, 1 \cdot a^{-1} = b^{-1}$ cnf(not_product$_5$, negated_conjecture)

FLD027-1.p Elimination of multiplicative inverses in an equation
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, a = 0$ cnf(a_not_equal_to_additive_identity$_3$, negated_conjecture)
$\neg\, b = 0$ cnf(b_not_equal_to_additive_identity$_4$, negated_conjecture)
$a^{-1} = b^{-1}$ cnf(multiplicative_inverses_equal, negated_conjecture)
$\neg\, a = b$ cnf(a_not_equal_to_b$_6$, negated_conjecture)

FLD027-3.p Elimination of multiplicative inverses in an equation
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, 0 + a = 0$ cnf(not_sum$_3$, negated_conjecture)
$\neg\, 0 + b = 0$ cnf(not_sum$_4$, negated_conjecture)
$1 \cdot a^{-1} = b^{-1}$ cnf(product$_5$, negated_conjecture)
$\neg\, 1 \cdot a = b$ cnf(not_product$_6$, negated_conjecture)

FLD028-1.p The solution of a multiplicative linear equation is unique
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$\neg\, a = 0$ cnf(a_not_equal_to_additive_identity$_5$, negated_conjecture)
$a \cdot u = b$ cnf(multiply_equals_b$_6$, negated_conjecture)
$a \cdot v = b$ cnf(multiply_equals_b$_7$, negated_conjecture)
$\neg\, u = v$ cnf(u_not_equal_to_v$_8$, negated_conjecture)

FLD028-3.p The solution of a multiplicative linear equation is unique
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf($\mathrm{not\_sum}_5$, negated_conjecture)
$a \cdot u{=}b$ cnf($\mathrm{product}_6$, negated_conjecture)
$a \cdot v{=}b$ cnf($\mathrm{product}_7$, negated_conjecture)
$\neg\, 1 \cdot u{=}v$ cnf($\mathrm{not\_product}_8$, negated_conjecture)

FLD029-1.p The solution of a multiplicative linear equation is unique
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$\neg\, b{=}0$ cnf($\mathrm{b\_not\_equal\_to\_additive\_identity}_5$, negated_conjecture)
$a \cdot u{=}b$ cnf($\mathrm{multiply\_equals\_b}_6$, negated_conjecture)
$a \cdot v{=}b$ cnf($\mathrm{multiply\_equals\_b}_7$, negated_conjecture)
$\neg\, u{=}v$ cnf($\mathrm{u\_not\_equal\_to\_v}_8$, negated_conjecture)

FLD029-3.p The solution of a multiplicative linear equation is unique
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$\neg\, 0 + b{=}0$ cnf($\mathrm{not\_sum}_5$, negated_conjecture)
$a \cdot u{=}b$ cnf($\mathrm{product}_6$, negated_conjecture)
$a \cdot v{=}b$ cnf($\mathrm{product}_7$, negated_conjecture)
$\neg\, 1 \cdot u{=}v$ cnf($\mathrm{not\_product}_8$, negated_conjecture)

FLD030-1.p Compatibility of multiplication and equality relation
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$a{=}d$ cnf($\mathrm{a\_equals\_d}_4$, negated_conjecture)
$\neg\, d \cdot b{=}a \cdot b$ cnf($\mathrm{multiply\_not\_equal\_to\_multiply}_5$, negated_conjecture)

FLD030-2.p Compatibility of multiplication and equality relation
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$a \cdot b{=}c$ cnf($\mathrm{multiply\_equals\_c}_5$, negated_conjecture)
$a{=}d$ cnf($\mathrm{a\_equals\_d}_6$, negated_conjecture)
$\neg\, d \cdot b{=}c$ cnf($\mathrm{multiply\_not\_equal\_to\_c}_7$, negated_conjecture)

FLD030-3.p Compatibility of multiplication and equality relation
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$1 \cdot a{=}d$ cnf($\mathrm{product}_4$, negated_conjecture)
$\neg\, d \cdot b{=}a \cdot b$ cnf($\mathrm{not\_product}_5$, negated_conjecture)

FLD030-4.p Compatibility of multiplication and equality relation
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)

defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$a \cdot b{=}c$ cnf(product$_5$, negated_conjecture)
$1 \cdot a{=}d$ cnf(product$_6$, negated_conjecture)
$\neg\, d \cdot b{=}c$ cnf(not_product$_7$, negated_conjecture)

FLD031-1.p If a is one, then the multiplicative inverse of a is also one
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$a{=}1$ cnf(a_equals_multiplicative_identity$_2$, negated_conjecture)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_3$, negated_conjecture)
$\neg\, a^{-1}{=}1$ cnf(multiplicative_inverses_not_equal, negated_conjecture)

FLD031-3.p If a is one, then the multiplicative inverse of a is also one
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$1 \cdot a{=}1$ cnf(product$_2$, negated_conjecture)
$\neg\, 0 + a{=}0$ cnf(not_sum$_3$, negated_conjecture)
$\neg\, 1 \cdot a^{-1}{=}1$ cnf(not_product$_4$, negated_conjecture)

FLD031-5.p If a is one, then the multiplicative inverse of a is also one
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$1 \cdot a{=}1$ cnf(product$_2$, negated_conjecture)
$\neg\, 0 + a{=}0$ cnf(not_sum$_3$, negated_conjecture)
$\neg\, 1 \cdot 1{=}a^{-1}$ cnf(not_product$_4$, negated_conjecture)

FLD032-1.p If the multiplicative inverse of a is one, then a is one itself
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_2$, negated_conjecture)
$a^{-1}{=}1$ cnf(multiplicative_inverses_equal, negated_conjecture)
$\neg\, a{=}1$ cnf(a_not_equal_to_multiplicative_identity$_4$, negated_conjecture)

FLD032-3.p If the multiplicative inverse of a is one, then a is one itself
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf(not_sum$_2$, negated_conjecture)
$1 \cdot a^{-1}{=}1$ cnf(product$_3$, negated_conjecture)
$\neg\, 1 \cdot a{=}1$ cnf(not_product$_4$, negated_conjecture)

FLD033-1.p The multiplicative identity is unique
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(m) cnf(m_is_defined, hypothesis)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_3$, negated_conjecture)
$m \cdot a{=}a$ cnf(multiply_equals_a$_4$, negated_conjecture)
$\neg\, m{=}1$ cnf(m_not_equal_to_multiplicative_identity$_5$, negated_conjecture)

FLD033-3.p The multiplicative identity is unique
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(m) cnf(m_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf(not_sum$_3$, negated_conjecture)
$m \cdot a{=}a$ cnf(product$_4$, negated_conjecture)
$\neg\, 1 \cdot m{=}1$ cnf(not_product$_5$, negated_conjecture)

FLD034-1.p Every element equal one is a multiplicative identity
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(m) cnf(m_is_defined, hypothesis)
$m{=}1$ cnf(m_equals_multiplicative_identity$_3$, negated_conjecture)
$\neg\, m \cdot a{=}a$ cnf(multiply_not_equal_to_a$_4$, negated_conjecture)

FLD034-3.p Every element equal one is a multiplicative identity

include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(m) cnf(m_is_defined, hypothesis)
$1 \cdot m{=}1$ cnf(product$_3$, negated_conjecture)
$\neg\, m \cdot a{=}a$ cnf(not_product$_4$, negated_conjecture)

FLD035-1.p Elimination of a multiplication in an equation
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$a \cdot c{=}b \cdot c$ cnf(multiply_equals_multiply$_4$, negated_conjecture)
$\neg\, c{=}0$ cnf(c_not_equal_to_additive_identity$_5$, negated_conjecture)
$\neg\, a{=}b$ cnf(a_not_equal_to_b$_6$, negated_conjecture)

FLD035-3.p Elimination of a multiplication in an equation
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$a \cdot c{=}u$ cnf(product$_5$, negated_conjecture)
$b \cdot c{=}u$ cnf(product$_6$, negated_conjecture)
$\neg\, 0 + c{=}0$ cnf(not_sum$_7$, negated_conjecture)
$\neg\, 1 \cdot a{=}b$ cnf(not_product$_8$, negated_conjecture)

FLD036-1.p Only a multiplication by zero can make elements equal
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$a \cdot c{=}b \cdot c$ cnf(multiply_equals_multiply$_4$, negated_conjecture)
$\neg\, a{=}b$ cnf(a_not_equal_to_b$_5$, negated_conjecture)
$\neg\, c{=}0$ cnf(c_not_equal_to_additive_identity$_6$, negated_conjecture)

FLD036-3.p Only a multiplication by zero can make elements equal
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$a \cdot c{=}u$ cnf(product$_5$, negated_conjecture)
$b \cdot c{=}u$ cnf(product$_6$, negated_conjecture)
$\neg\, 1 \cdot a{=}b$ cnf(not_product$_7$, negated_conjecture)
$\neg\, 0 + c{=}0$ cnf(not_sum$_8$, negated_conjecture)

FLD037-1.p Side change of a term in an equation by multiplication, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_3$, negated_conjecture)
$a{=}b$ cnf(a_equals_b$_4$, negated_conjecture)
$\neg\, 1{=}b \cdot a^{-1}$ cnf(multiplicative_identity_not_equal_to_multiply$_5$, negated_conjecture)

FLD037-3.p Side change of a term in an equation by multiplication, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf(not_sum$_3$, negated_conjecture)
$1 \cdot a{=}b$ cnf(product$_4$, negated_conjecture)
$\neg\, b \cdot a^{-1}{=}1$ cnf(not_product$_5$, negated_conjecture)

FLD038-1.p Side change of a term in an equation by multiplication, part 2

include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg a{=}0$ cnf(a_not_equal_to_additive_identity$_3$, negated_conjecture)
$1{=}b \cdot a^{-1}$ cnf(multiplicative_identity_equals_multiply$_4$, negated_conjecture)
$\neg a{=}b$ cnf(a_not_equal_to_b$_5$, negated_conjecture)

FLD038-3.p Side change of a term in an equation by multiplication, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg 0 + a{=}0$ cnf(not_sum$_3$, negated_conjecture)
$b \cdot a^{-1}{=}1$ cnf(product$_4$, negated_conjecture)
$\neg 1 \cdot a{=}b$ cnf(not_product$_5$, negated_conjecture)

FLD039-1.p In a field with two or more elements, 1 and 0 must be different
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg a{=}0$ cnf(a_not_equal_to_additive_identity$_1$, negated_conjecture)
$1{=}0$ cnf(multiplicative_identity_equals_additive_identity$_3$, negated_conjecture)

FLD039-3.p In a field with two or more elements, 1 and 0 must be different
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg 0 + a{=}0$ cnf(not_sum$_1$, negated_conjecture)
$0 + 1{=}0$ cnf(sum$_3$, negated_conjecture)

FLD040-1.p If a is not 0, then the multiplicative inverse of a is not 0
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg a{=}0$ cnf(a_not_equal_to_additive_identity$_2$, negated_conjecture)
$a^{-1}{=}0$ cnf(multiplicative_inverse_equals_additive_identity$_3$, negated_conjecture)

FLD040-3.p If a is not 0, then the multiplicative inverse of a is not 0
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg 0 + a{=}0$ cnf(not_sum$_2$, negated_conjecture)
$0 + 0{=}a^{-1}$ cnf(sum$_3$, negated_conjecture)

FLD040-5.p If a is not 0, then the multiplicative inverse of a is not 0
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg 0 + a{=}0$ cnf(not_sum$_2$, negated_conjecture)
$0 + a^{-1}{=}0$ cnf(sum$_3$, negated_conjecture)

FLD041-1.p If a,b are not 0, the the product of a and b is not 0
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg a{=}0$ cnf(a_not_equal_to_additive_identity$_3$, negated_conjecture)
$\neg b{=}0$ cnf(b_not_equal_to_additive_identity$_4$, negated_conjecture)
$a \cdot b{=}0$ cnf(multiply_equals_additive_identity$_5$, negated_conjecture)

FLD041-2.p If a,b are not 0, the the product of a and b is not 0
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$\neg a{=}0$ cnf(a_not_equal_to_additive_identity$_4$, negated_conjecture)
$\neg b{=}0$ cnf(b_not_equal_to_additive_identity$_5$, negated_conjecture)
$a \cdot b{=}c$ cnf(multiply_equals_c$_6$, negated_conjecture)
$c{=}0$ cnf(c_equals_additive_identity$_7$, negated_conjecture)

FLD041-3.p If a,b are not 0, the the product of a and b is not 0
include('Axioms/FLD002-0.ax')

defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, 0 + a = 0$ cnf(not_sum$_3$, negated_conjecture)
$\neg\, 0 + b = 0$ cnf(not_sum$_4$, negated_conjecture)
$a \cdot b = 0$ cnf(product$_5$, negated_conjecture)

FLD041-4.p If a,b are not 0, the the product of a and b is not 0
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$\neg\, 0 + a = 0$ cnf(not_sum$_4$, negated_conjecture)
$\neg\, 0 + b = 0$ cnf(not_sum$_5$, negated_conjecture)
$a \cdot b = c$ cnf(product$_6$, negated_conjecture)
$0 + c = 0$ cnf(sum$_7$, negated_conjecture)

FLD043-1.p The multiplication with 0 yields 0
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, 0 \cdot a = 0$ cnf(multiply_not_equal_to_additive_identity$_2$, negated_conjecture)

FLD043-3.p The multiplication with 0 yields 0
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 \cdot a = b$ cnf(product$_3$, negated_conjecture)
$\neg\, 0 + b = 0$ cnf(not_sum$_4$, negated_conjecture)

FLD043-5.p The multiplication with 0 yields 0
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, 0 \cdot a = 0$ cnf(not_product$_2$, negated_conjecture)

FLD044-1.p Compatibility of multiplication and additive inverses
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, (-a) \cdot b = -\, a \cdot b$ cnf(multiply_not_equal_to_additive_inverse$_3$, negated_conjecture)

FLD044-2.p Compatibility of multiplication and additive inverses
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$(-a) \cdot b = c$ cnf(multiply_equals_c$_5$, negated_conjecture)
$a \cdot b = d$ cnf(multiply_equals_d$_6$, negated_conjecture)
$\neg\, c = -\, d$ cnf(c_not_equal_to_additive_inverse$_7$, negated_conjecture)

FLD044-3.p Compatibility of multiplication and additive inverses
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, (-a) \cdot b = -\, a \cdot b$ cnf(not_product$_3$, negated_conjecture)

FLD044-4.p Compatibility of multiplication and additive inverses
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$a \cdot b = u$ cnf(product$_4$, negated_conjecture)
$\neg\, (-a) \cdot b = -\, u$ cnf(not_product$_5$, negated_conjecture)

FLD045-1.p Compatibility of multiplication and additive inverses
include('Axioms/FLD001-0.ax')

defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\,(-a)\cdot(-b)=a\cdot b$ cnf(multiply_not_equal_to_multiply$_3$, negated_conjecture)

FLD045-2.p Compatibility of multiplication and additive inverses
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$(-a)\cdot(-b)=c$ cnf(multiply_equals_c$_5$, negated_conjecture)
$a\cdot b=d$ cnf(multiply_equals_d$_6$, negated_conjecture)
$\neg\,c=d$ cnf(c_not_equal_to_d$_7$, negated_conjecture)

FLD045-3.p Compatibility of multiplication and additive inverses
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\,a\cdot b=(-a)\cdot(-b)$ cnf(not_product$_3$, negated_conjecture)

FLD045-4.p Compatibility of multiplication and additive inverses
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$(-a)\cdot(-b)=u$ cnf(product$_4$, negated_conjecture)
$\neg\,a\cdot b=u$ cnf(not_product$_5$, negated_conjecture)

FLD046-1.p Compatibility of the additive and the multiplicative inverse
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\,a=0$ cnf(a_not_equal_to_additive_identity$_2$, negated_conjecture)
$\neg\,(-a)^{-1}=-\,a^{-1}$ cnf(mult_inverse_not_equal_to_additive_inverse$_3$, negated_conjecture)

FLD046-3.p Compatibility of the additive and the multiplicative inverse
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\,0+a=0$ cnf(not_sum$_2$, negated_conjecture)
$\neg\,0+(-a)^{-1}=-\,a^{-1}$ cnf(not_sum$_3$, negated_conjecture)

FLD047-1.p Fraction calculation, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$\neg\,b=0$ cnf(b_not_equal_to_additive_identity$_4$, negated_conjecture)
$\neg\,c=0$ cnf(c_not_equal_to_additive_identity$_5$, negated_conjecture)
$\neg\,a\cdot b^{-1}=(a\cdot c)\cdot(b\cdot c)^{-1}$ cnf(multiply_not_equal_to_multiply$_6$, negated_conjecture)

FLD047-2.p Fraction calculation, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$\neg\,b=0$ cnf(b_not_equal_to_additive_identity$_7$, negated_conjecture)
$\neg\,c=0$ cnf(c_not_equal_to_additive_identity$_8$, negated_conjecture)
$a\cdot b^{-1}=u$ cnf(multiply_equals_u$_9$, negated_conjecture)
$a\cdot c=s$ cnf(multiply_equals_s$_{10}$, negated_conjecture)
$b\cdot c=t$ cnf(multiply_equals_t$_{11}$, negated_conjecture)
$\neg\,s\cdot t^{-1}=u$ cnf(multiply_not_equal_to_u$_{12}$, negated_conjecture)

FLD047-3.p Fraction calculation, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$\neg\, 0 + b = 0$ cnf(not_sum$_4$, negated_conjecture)
$\neg\, 0 + c = 0$ cnf(not_sum$_5$, negated_conjecture)
$\neg\, a \cdot b^{-1} = (a \cdot c) \cdot (b \cdot c)^{-1}$ cnf(not_product$_6$, negated_conjecture)

FLD047-4.p Fraction calculation, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$\neg\, 0 + b = 0$ cnf(not_sum$_7$, negated_conjecture)
$\neg\, 0 + c = 0$ cnf(not_sum$_8$, negated_conjecture)
$a \cdot b^{-1} = u$ cnf(product$_9$, negated_conjecture)
$a \cdot c = s$ cnf(product$_{10}$, negated_conjecture)
$b \cdot c = t$ cnf(product$_{11}$, negated_conjecture)
$\neg\, s \cdot t^{-1} = u$ cnf(not_product$_{12}$, negated_conjecture)

FLD048-1.p Fraction calculation, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, b = 0$ cnf(b_not_equal_to_additive_identity$_5$, negated_conjecture)
$\neg\, d = 0$ cnf(d_not_equal_to_additive_identity$_6$, negated_conjecture)
$\neg\, (a \cdot b^{-1}) \cdot (c \cdot d^{-1}) = (a \cdot c) \cdot (b \cdot d)^{-1}$ cnf(multiply_not_equal_to_multiply$_7$, negated_conjecture)

FLD048-2.p Fraction calculation, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)
defined(l) cnf(l_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$\neg\, b = 0$ cnf(b_not_equal_to_additive_identity$_{10}$, negated_conjecture)
$\neg\, d = 0$ cnf(d_not_equal_to_additive_identity$_{11}$, negated_conjecture)
$s \cdot t = u$ cnf(multiply_equals_u$_{12}$, negated_conjecture)
$a \cdot b^{-1} = s$ cnf(multiply_equals_s$_{13}$, negated_conjecture)
$c \cdot d^{-1} = t$ cnf(multiply_equals_t$_{14}$, negated_conjecture)
$a \cdot c = k$ cnf(multiply_equals_k$_{15}$, negated_conjecture)
$b \cdot d = l$ cnf(multiply_equals_l$_{16}$, negated_conjecture)
$\neg\, k \cdot l^{-1} = u$ cnf(multiply_not_equal_to_u$_{17}$, negated_conjecture)

FLD048-3.p Fraction calculation, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, 0 + b = 0$ cnf(not_sum$_5$, negated_conjecture)

$\neg\, 0 + d{=}0$ cnf(not_sum$_6$, negated_conjecture)
$\neg\, (a \cdot b^{-1}) \cdot (c \cdot d^{-1}){=}(a \cdot c) \cdot (b \cdot d)^{-1}$ cnf(not_product$_7$, negated_conjecture)

FLD048-4.p Fraction calculation, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)
defined(l) cnf(l_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$\neg\, 0 + b{=}0$ cnf(not_sum$_{10}$, negated_conjecture)
$\neg\, 0 + d{=}0$ cnf(not_sum$_{11}$, negated_conjecture)
$s \cdot t{=}u$ cnf(product$_{12}$, negated_conjecture)
$a \cdot b^{-1}{=}s$ cnf(product$_{13}$, negated_conjecture)
$c \cdot d^{-1}{=}t$ cnf(product$_{14}$, negated_conjecture)
$a \cdot c{=}k$ cnf(product$_{15}$, negated_conjecture)
$b \cdot d{=}l$ cnf(product$_{16}$, negated_conjecture)
$\neg\, k \cdot l^{-1}{=}u$ cnf(not_product$_{17}$, negated_conjecture)

FLD049-1.p Fraction calculation, part 3
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_5$, negated_conjecture)
$\neg\, d{=}0$ cnf(d_not_equal_to_additive_identity$_6$, negated_conjecture)
$a \cdot b^{-1}{=}c \cdot d^{-1}$ cnf(multiply_equals_multiply$_7$, negated_conjecture)
$\neg\, a \cdot d{=}b \cdot c$ cnf(multiply_not_equal_to_multiply$_8$, negated_conjecture)

FLD049-2.p Fraction calculation, part 3
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_7$, negated_conjecture)
$\neg\, d{=}0$ cnf(d_not_equal_to_additive_identity$_8$, negated_conjecture)
$a \cdot b^{-1}{=}s$ cnf(multiply_equals_s$_9$, negated_conjecture)
$c \cdot d^{-1}{=}s$ cnf(multiply_equals_s$_{10}$, negated_conjecture)
$a \cdot d{=}k$ cnf(multiply_equals_k$_{11}$, negated_conjecture)
$\neg\, b \cdot c{=}k$ cnf(multiply_not_equal_to_k$_{12}$, negated_conjecture)

FLD049-3.p Fraction calculation, part 3
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, 0 + b{=}0$ cnf(not_sum$_5$, negated_conjecture)
$\neg\, 0 + d{=}0$ cnf(not_sum$_6$, negated_conjecture)
$a \cdot b^{-1}{=}c \cdot d^{-1}$ cnf(product$_7$, negated_conjecture)
$\neg\, a \cdot d{=}b \cdot c$ cnf(not_product$_8$, negated_conjecture)

FLD049-4.p Fraction calculation, part 3
include('Axioms/FLD002-0.ax')

defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
$\neg\, 0 + b = 0$ cnf(not_sum$_7$, negated_conjecture)
$\neg\, 0 + d = 0$ cnf(not_sum$_8$, negated_conjecture)
$a \cdot b^{-1} = s$ cnf(product$_9$, negated_conjecture)
$c \cdot d^{-1} = s$ cnf(product$_{10}$, negated_conjecture)
$a \cdot d = k$ cnf(product$_{11}$, negated_conjecture)
$\neg\, b \cdot c = k$ cnf(not_product$_{12}$, negated_conjecture)

FLD050-1.p Fraction calculation, part 4
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, b = 0$ cnf(b_not_equal_to_additive_identity$_5$, negated_conjecture)
$\neg\, d = 0$ cnf(d_not_equal_to_additive_identity$_6$, negated_conjecture)
$a \cdot d = b \cdot c$ cnf(multiply_equals_multiply$_7$, negated_conjecture)
$\neg\, a \cdot b^{-1} = c \cdot d^{-1}$ cnf(multiply_not_equal_to_multiply$_8$, negated_conjecture)

FLD050-2.p Fraction calculation, part 4
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
$\neg\, b = 0$ cnf(b_not_equal_to_additive_identity$_7$, negated_conjecture)
$\neg\, d = 0$ cnf(d_not_equal_to_additive_identity$_8$, negated_conjecture)
$a \cdot b^{-1} = s$ cnf(multiply_equals_s$_9$, negated_conjecture)
$a \cdot d = k$ cnf(multiply_equals_k$_{10}$, negated_conjecture)
$b \cdot c = k$ cnf(multiply_equals_k$_{11}$, negated_conjecture)
$\neg\, c \cdot d^{-1} = s$ cnf(multiply_not_equal_to_s$_{12}$, negated_conjecture)

FLD050-3.p Fraction calculation, part 4
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, 0 + b = 0$ cnf(not_sum$_5$, negated_conjecture)
$\neg\, 0 + d = 0$ cnf(not_sum$_6$, negated_conjecture)
$a \cdot d = b \cdot c$ cnf(product$_7$, negated_conjecture)
$\neg\, a \cdot b^{-1} = c \cdot d^{-1}$ cnf(not_product$_8$, negated_conjecture)

FLD050-4.p Fraction calculation, part 4
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
$\neg\, 0 + b = 0$ cnf(not_sum$_7$, negated_conjecture)
$\neg\, 0 + d = 0$ cnf(not_sum$_8$, negated_conjecture)
$a \cdot b^{-1} = s$ cnf(product$_9$, negated_conjecture)

$a \cdot d{=}k$ cnf(product$_{10}$, negated_conjecture)
$b \cdot c{=}k$ cnf(product$_{11}$, negated_conjecture)
$\neg\, c \cdot d^{-1}{=}s$ cnf(not_product$_{12}$, negated_conjecture)

FLD051-1.p Fraction calculation, part 5
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_5$, negated_conjecture)
$\neg\, c{=}0$ cnf(c_not_equal_to_additive_identity$_6$, negated_conjecture)
$\neg\, d{=}0$ cnf(d_not_equal_to_additive_identity$_7$, negated_conjecture)
$\neg\, (a \cdot b^{-1}) \cdot (c \cdot d^{-1})^{-1}{=}(a \cdot d) \cdot (b \cdot c)^{-1}$ cnf(multiply_not_equal_to_multiply$_8$, negated_conjecture)

FLD051-2.p Fraction calculation, part 5
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)
defined(l) cnf(l_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_{10}$, negated_conjecture)
$\neg\, c{=}0$ cnf(c_not_equal_to_additive_identity$_{11}$, negated_conjecture)
$\neg\, d{=}0$ cnf(d_not_equal_to_additive_identity$_{12}$, negated_conjecture)
$s \cdot t^{-1}{=}u$ cnf(multiply_equals_u$_{13}$, negated_conjecture)
$a \cdot b^{-1}{=}s$ cnf(multiply_equals_s$_{14}$, negated_conjecture)
$c \cdot d^{-1}{=}t$ cnf(multiply_equals_t$_{15}$, negated_conjecture)
$a \cdot d{=}k$ cnf(multiply_equals_k$_{16}$, negated_conjecture)
$b \cdot c{=}l$ cnf(multiply_equals_l$_{17}$, negated_conjecture)
$\neg\, k \cdot l^{-1}{=}u$ cnf(multiply_not_equal_to_u$_{18}$, negated_conjecture)

FLD051-3.p Fraction calculation, part 5
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, 0 + b{=}0$ cnf(not_sum$_5$, negated_conjecture)
$\neg\, 0 + c{=}0$ cnf(not_sum$_6$, negated_conjecture)
$\neg\, 0 + d{=}0$ cnf(not_sum$_7$, negated_conjecture)
$\neg\, (a \cdot b^{-1}) \cdot (c \cdot d^{-1})^{-1}{=}(a \cdot d) \cdot (b \cdot c)^{-1}$ cnf(not_product$_8$, negated_conjecture)

FLD051-4.p Fraction calculation, part 5
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)
defined(l) cnf(l_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$\neg\, 0 + b{=}0$ cnf(not_sum$_{10}$, negated_conjecture)
$\neg\, 0 + c{=}0$ cnf(not_sum$_{11}$, negated_conjecture)
$\neg\, 0 + d{=}0$ cnf(not_sum$_{12}$, negated_conjecture)

$s \cdot t^{-1}{=}u$ cnf(product$_{13}$, negated_conjecture)
$a \cdot b^{-1}{=}s$ cnf(product$_{14}$, negated_conjecture)
$c \cdot d^{-1}{=}t$ cnf(product$_{15}$, negated_conjecture)
$a \cdot d{=}k$ cnf(product$_{16}$, negated_conjecture)
$b \cdot c{=}l$ cnf(product$_{17}$, negated_conjecture)
$\neg\, k \cdot l^{-1}{=}u$ cnf(not_product$_{18}$, negated_conjecture)

FLD052-1.p Fraction calculation, part 6
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_5$, negated_conjecture)
$\neg\, d{=}0$ cnf(d_not_equal_to_additive_identity$_6$, negated_conjecture)
$\neg\, a \cdot b^{-1} + c \cdot d^{-1}{=}(a \cdot d + b \cdot c) \cdot (b \cdot d)^{-1}$ cnf(add_not_equal_to_multiply$_7$, negated_conjecture)

FLD052-2.p Fraction calculation, part 6
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)
defined(l) cnf(l_is_defined, hypothesis)
defined(p) cnf(p_is_defined, hypothesis)
defined(q) cnf(q_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_{13}$, negated_conjecture)
$\neg\, d{=}0$ cnf(d_not_equal_to_additive_identity$_{14}$, negated_conjecture)
$a \cdot b^{-1}{=}s$ cnf(multiply_equals_s$_{15}$, negated_conjecture)
$c \cdot d^{-1}{=}t$ cnf(multiply_equals_t$_{16}$, negated_conjecture)
$s + t{=}u$ cnf(add_equals_u$_{17}$, negated_conjecture)
$a \cdot d{=}p$ cnf(multiply_equals_p$_{18}$, negated_conjecture)
$b \cdot c{=}q$ cnf(multiply_equals_q$_{19}$, negated_conjecture)
$p + q{=}k$ cnf(add_equals_k$_{20}$, negated_conjecture)
$b \cdot d{=}l$ cnf(multiply_equals_l$_{21}$, negated_conjecture)
$\neg\, k \cdot l^{-1}{=}u$ cnf(multiply_not_equal_to_u$_{22}$, negated_conjecture)

FLD052-3.p Fraction calculation, part 6
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, 0 + b{=}0$ cnf(not_sum$_5$, negated_conjecture)
$\neg\, 0 + d{=}0$ cnf(not_sum$_6$, negated_conjecture)
$\neg\, a \cdot b^{-1} + c \cdot d^{-1}{=}(a \cdot d + b \cdot c) \cdot (b \cdot d)^{-1}$ cnf(not_sum$_7$, negated_conjecture)

FLD052-4.p Fraction calculation, part 6
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)

defined(l) cnf(l_is_defined, hypothesis)
defined(p) cnf(p_is_defined, hypothesis)
defined(q) cnf(q_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$\neg\, 0 + b{=}0$ cnf(not_sum$_{13}$, negated_conjecture)
$\neg\, 0 + d{=}0$ cnf(not_sum$_{14}$, negated_conjecture)
$a \cdot b^{-1}{=}s$ cnf(product$_{15}$, negated_conjecture)
$c \cdot d^{-1}{=}t$ cnf(product$_{16}$, negated_conjecture)
$s + t{=}u$ cnf(sum$_{17}$, negated_conjecture)
$a \cdot d{=}p$ cnf(product$_{18}$, negated_conjecture)
$b \cdot c{=}q$ cnf(product$_{19}$, negated_conjecture)
$p + q{=}k$ cnf(sum$_{20}$, negated_conjecture)
$b \cdot d{=}l$ cnf(product$_{21}$, negated_conjecture)
$\neg\, k \cdot l^{-1}{=}u$ cnf(not_product$_{22}$, negated_conjecture)

FLD053-1.p Fraction calculation, part 7
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_5$, negated_conjecture)
$\neg\, d{=}0$ cnf(d_not_equal_to_additive_identity$_6$, negated_conjecture)
$\neg\, a \cdot b^{-1} + -c \cdot d^{-1}{=}(a \cdot d + -b \cdot c) \cdot (b \cdot d)^{-1}$ cnf(add_not_equal_to_multiply$_7$, negated_conjecture)

FLD053-2.p Fraction calculation, part 7
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)
defined(l) cnf(l_is_defined, hypothesis)
defined(p) cnf(p_is_defined, hypothesis)
defined(q) cnf(q_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_{12}$, negated_conjecture)
$\neg\, d{=}0$ cnf(d_not_equal_to_additive_identity$_{13}$, negated_conjecture)
$a \cdot b^{-1}{=}s$ cnf(multiply_equals_s$_{14}$, negated_conjecture)
$c \cdot d^{-1}{=}t$ cnf(multiply_equals_t$_{15}$, negated_conjecture)
$s + -t{=}u$ cnf(add_equals_u$_{16}$, negated_conjecture)
$a \cdot d{=}p$ cnf(multiply_equals_p$_{17}$, negated_conjecture)
$b \cdot c{=}q$ cnf(multiply_equals_q$_{18}$, negated_conjecture)
$p + -q{=}k$ cnf(add_equals_k$_{19}$, negated_conjecture)
$b \cdot d{=}l$ cnf(multiply_equals_l$_{20}$, negated_conjecture)
$\neg\, k \cdot l^{-1}{=}u$ cnf(multiply_not_equal_to_u$_{21}$, negated_conjecture)

FLD053-3.p Fraction calculation, part 7
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, 0 + b{=}0$ cnf(not_sum$_5$, negated_conjecture)
$\neg\, 0 + d{=}0$ cnf(not_sum$_6$, negated_conjecture)
$\neg\, a \cdot b^{-1} + -c \cdot d^{-1}{=}(a \cdot d + -b \cdot c) \cdot (b \cdot d)^{-1}$ cnf(not_sum$_7$, negated_conjecture)

FLD053-4.p Fraction calculation, part 7

include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)
defined(l) cnf(l_is_defined, hypothesis)
defined(p) cnf(p_is_defined, hypothesis)
defined(q) cnf(q_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$\neg\, 0 + b{=}0$ cnf(not_sum$_{12}$, negated_conjecture)
$\neg\, 0 + d{=}0$ cnf(not_sum$_{13}$, negated_conjecture)
$a \cdot b^{-1}{=}s$ cnf(product$_{14}$, negated_conjecture)
$c \cdot d^{-1}{=}t$ cnf(product$_{15}$, negated_conjecture)
$s + -t{=}u$ cnf(sum$_{16}$, negated_conjecture)
$a \cdot d{=}p$ cnf(product$_{17}$, negated_conjecture)
$b \cdot c{=}q$ cnf(product$_{18}$, negated_conjecture)
$p + -q{=}k$ cnf(sum$_{19}$, negated_conjecture)
$b \cdot d{=}l$ cnf(product$_{20}$, negated_conjecture)
$\neg\, k \cdot l^{-1}{=}u$ cnf(not_product$_{21}$, negated_conjecture)

FLD054-1.p Fraction calculation, part 8
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_3$, negated_conjecture)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_4$, negated_conjecture)
$\neg\, a^{-1} + b^{-1}{=}(a + b) \cdot (a \cdot b)^{-1}$ cnf(add_not_equal_to_multiply$_5$, negated_conjecture)

FLD054-2.p Fraction calculation, part 8
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)
defined(l) cnf(l_is_defined, hypothesis)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_6$, negated_conjecture)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_7$, negated_conjecture)
$a^{-1} + b^{-1}{=}u$ cnf(add_equals_u$_8$, negated_conjecture)
$a + b{=}k$ cnf(add_equals_k$_9$, negated_conjecture)
$a \cdot b{=}l$ cnf(multiply_equals_l$_{10}$, negated_conjecture)
$\neg\, k \cdot l^{-1}{=}u$ cnf(multiply_not_equal_to_u$_{11}$, negated_conjecture)

FLD054-3.p Fraction calculation, part 8
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf(not_sum$_3$, negated_conjecture)
$\neg\, 0 + b{=}0$ cnf(not_sum$_4$, negated_conjecture)
$\neg\, a^{-1} + b^{-1}{=}(a + b) \cdot (a \cdot b)^{-1}$ cnf(not_sum$_5$, negated_conjecture)

FLD054-4.p Fraction calculation, part 8
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(k) cnf(k_is_defined, hypothesis)
defined(l) cnf(l_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf(not_sum$_6$, negated_conjecture)

$\neg\, 0 + b{=}0$ cnf(not_sum$_7$, negated_conjecture)
$a^{-1} + b^{-1}{=}u$ cnf(sum$_8$, negated_conjecture)
$a + b{=}k$ cnf(sum$_9$, negated_conjecture)
$a \cdot b{=}l$ cnf(product$_{10}$, negated_conjecture)
$\neg\, k \cdot l^{-1}{=}u$ cnf(not_product$_{11}$, negated_conjecture)

FLD055-1.p Compatibility of order and equality relation
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$a \le b$ cnf(less_or_equal$_4$, negated_conjecture)
$b{=}c$ cnf(b_equals_c$_5$, negated_conjecture)
$\neg\, a \le c$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD055-3.p Compatibility of order and equality relation
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$a \le b$ cnf(less_or_equal$_4$, negated_conjecture)
$0 + b{=}c$ cnf(sum$_5$, negated_conjecture)
$\neg\, a \le c$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD056-1.p Reflexivity of the order relation
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, a \le a$ cnf(not_less_or_equal$_2$, negated_conjecture)

FLD056-3.p Reflexivity of the order relation
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, a \le a$ cnf(not_less_or_equal$_2$, negated_conjecture)

FLD057-1.p 0 is less than 1
include('Axioms/FLD001-0.ax')
$\neg\, 0 \le 1$ cnf(not_less_or_equal$_1$, negated_conjecture)

FLD057-3.p 0 is less than 1
include('Axioms/FLD002-0.ax')
$\neg\, 0 \le 1$ cnf(not_less_or_equal$_1$, negated_conjecture)

FLD058-1.p If a greater 0 and b greater or equal a the b greater 0
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 \le a$ cnf(less_or_equal$_3$, negated_conjecture)
$a \le b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_5$, negated_conjecture)
$b{=}0$ cnf(b_equals_additive_identity$_6$, negated_conjecture)

FLD058-3.p If a greater 0 and b greater or equal a the b greater 0
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 \le a$ cnf(less_or_equal$_3$, negated_conjecture)
$a \le b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 0 + a{=}0$ cnf(not_sum$_5$, negated_conjecture)
$0 + b{=}0$ cnf(sum$_6$, negated_conjecture)

FLD059-1.p If a greater or equal 0, then 2a greater or equal 0
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$0 \le a$ cnf(less_or_equal$_2$, negated_conjecture)
$\neg\, 0 \le a + a$ cnf(not_less_or_equal$_3$, negated_conjecture)

FLD059-2.p If a greater or equal 0, then 2a greater or equal 0
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$a + a = u$ cnf(add_equals_u$_4$, negated_conjecture)
$\neg\, 0 \leq u$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD059-3.p If a greater or equal 0, then 2a greater or equal 0
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_2$, negated_conjecture)
$\neg\, 0 \leq a + a$ cnf(not_less_or_equal$_3$, negated_conjecture)

FLD059-4.p If a greater or equal 0, then 2a greater or equal 0
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$a + a = u$ cnf(sum$_4$, negated_conjecture)
$\neg\, 0 \leq u$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD060-1.p If b greater or equal b, then 2b greater or equal 2a
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a + a \leq b + b$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD060-2.p If b greater or equal b, then 2b greater or equal 2a
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$a + a = u$ cnf(add_equals_u$_5$, negated_conjecture)
$b + b = v$ cnf(add_equals_v$_6$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_7$, negated_conjecture)
$\neg\, u \leq v$ cnf(not_less_or_equal$_8$, negated_conjecture)

FLD060-3.p If b greater or equal b, then 2b greater or equal 2a
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a + a \leq b + b$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD060-4.p If b greater or equal b, then 2b greater or equal 2a
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$a + a = u$ cnf(sum$_6$, negated_conjecture)
$b + b = v$ cnf(sum$_7$, negated_conjecture)
$\neg\, u \leq v$ cnf(not_less_or_equal$_8$, negated_conjecture)

FLD061-1.p The resulting inequality of a summation of two inequalities
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)

defined(d) cnf(d_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$c \leq d$ cnf(less_or_equal$_6$, negated_conjecture)
$\neg\, a + c \leq d + b$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD061-2.p The resulting inequality of a summation of two inequalities
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$a + c = u$ cnf(add_equals_u$_7$, negated_conjecture)
$d + b = v$ cnf(add_equals_v$_8$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_9$, negated_conjecture)
$c \leq d$ cnf(less_or_equal$_{10}$, negated_conjecture)
$\neg\, u \leq v$ cnf(not_less_or_equal$_{11}$, negated_conjecture)

FLD061-3.p The resulting inequality of a summation of two inequalities
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$c \leq d$ cnf(less_or_equal$_6$, negated_conjecture)
$\neg\, a + c \leq d + b$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD061-4.p The resulting inequality of a summation of two inequalities
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_7$, negated_conjecture)
$c \leq d$ cnf(less_or_equal$_8$, negated_conjecture)
$a + c = u$ cnf(sum$_9$, negated_conjecture)
$d + b = v$ cnf(sum$_{10}$, negated_conjecture)
$\neg\, u \leq v$ cnf(not_less_or_equal$_{11}$, negated_conjecture)

FLD062-1.p Compatibility of the order relation and additive inverses
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, -b \leq -a$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD062-3.p Compatibility of the order relation and additive inverses
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, -b \leq -a$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD063-1.p Elimination of additive inverses in an order relation
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$-b \leq -a$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD063-3.p Elimination of additive inverses in an order relation
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$-b \leq -a$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD064-1.p Side change of a term in an order relation, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_2$, negated_conjecture)
$\neg - a \leq 0$ cnf(not_less_or_equal$_3$, negated_conjecture)

FLD064-3.p Side change of a term in an order relation, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_2$, negated_conjecture)
$\neg - a \leq 0$ cnf(not_less_or_equal$_3$, negated_conjecture)

FLD065-1.p Side change of a term in an order relation, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$-a \leq 0$ cnf(less_or_equal$_2$, negated_conjecture)
$\neg\, 0 \leq a$ cnf(not_less_or_equal$_3$, negated_conjecture)

FLD065-3.p Side change of a term in an order relation, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$-a \leq 0$ cnf(less_or_equal$_2$, negated_conjecture)
$\neg\, 0 \leq a$ cnf(not_less_or_equal$_3$, negated_conjecture)

FLD066-1.p Elimination of a summation in an order relation
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$a + c \leq b + c$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD066-3.p Elimination of a summation in an order relation
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$a + c{=}u$ cnf(sum$_6$, negated_conjecture)
$b + c{=}v$ cnf(sum$_7$, negated_conjecture)
$u \leq v$ cnf(less_or_equal$_8$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_9$, negated_conjecture)

FLD067-1.p Side change in an order relation, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, 0 \leq b + -a$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD067-2.p Side change in an order relation, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_4$, negated_conjecture)

$b + -a = u$ cnf(add_equals_u$_5$, negated_conjecture)
$\neg\, 0 \leq u$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD067-3.p Side change in an order relation, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, 0 \leq b + -a$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD067-4.p Side change in an order relation, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$b + -a = u$ cnf(sum$_5$, negated_conjecture)
$\neg\, 0 \leq u$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD068-1.p Side change of a term in an order relation, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 \leq b + -a$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD068-2.p Side change of a term in an order relation, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$b + -a = u$ cnf(add_equals_u$_4$, negated_conjecture)
$0 \leq u$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD068-3.p Side change of a term in an order relation, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 \leq b + -a$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD068-4.p Side change of a term in an order relation, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$b + -a = u$ cnf(sum$_4$, negated_conjecture)
$0 \leq u$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD069-1.p If b > 0 and a >= 0, then a + b not 0
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, b = 0$ cnf(b_not_equal_to_additive_identity$_5$, negated_conjecture)
$a + b = 0$ cnf(add_equals_additive_identity$_6$, negated_conjecture)

FLD069-3.p If b > 0 and a >= 0, then a + b not 0
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)

$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 0 + b{=}0$ cnf(not_sum$_5$, negated_conjecture)
$a + b{=}0$ cnf(sum$_6$, negated_conjecture)

FLD070-1.p One-sided addition of two order relations
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 0 \leq a + b$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD070-2.p One-sided addition of two order relations
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$a + b{=}c$ cnf(add_equals_c$_4$, negated_conjecture)
$0 \leq a$ cnf(less_or_equal$_5$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_6$, negated_conjecture)
$\neg\, 0 \leq c$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD070-3.p One-sided addition of two order relations
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 0 \leq a + b$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD070-4.p One-sided addition of two order relations
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_4$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$a + b{=}c$ cnf(sum$_6$, negated_conjecture)
$\neg\, 0 \leq c$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD071-1.p One-sided multiplication of two order relations, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 0 \leq a \cdot b$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD071-2.p One-sided multiplication of two order relations, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_4$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$a \cdot b{=}u$ cnf(multiply_equals_u$_6$, negated_conjecture)
$\neg\, 0 \leq u$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD071-3.p One-sided multiplication of two order relations, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)

$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 0 \leq a \cdot b$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD071-4.p One-sided multiplication of two order relations, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_4$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$a \cdot b{=}u$ cnf(product$_6$, negated_conjecture)
$\neg\, 0 \leq u$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD072-1.p One-sided multiplication of two order relations, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$a \leq 0$ cnf(less_or_equal$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, a \cdot b \leq 0$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD072-2.p One-sided multiplication of two order relations, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$a \leq 0$ cnf(less_or_equal$_4$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$a \cdot b{=}u$ cnf(multiply_equals_u$_6$, negated_conjecture)
$\neg\, u \leq 0$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD072-3.p One-sided multiplication of two order relations, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$a \leq 0$ cnf(less_or_equal$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, a \cdot b \leq 0$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD072-4.p One-sided multiplication of two order relations, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$a \leq 0$ cnf(less_or_equal$_4$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$a \cdot b{=}u$ cnf(product$_6$, negated_conjecture)
$\neg\, u \leq 0$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD073-1.p One-sided multiplication of two order relations, part 3
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$a \leq 0$ cnf(less_or_equal$_3$, negated_conjecture)
$b \leq 0$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 0 \leq a \cdot b$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD073-2.p One-sided multiplication of two order relations, part 3
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)

$a \leq 0$ cnf(less_or_equal$_4$, negated_conjecture)
$b \leq 0$ cnf(less_or_equal$_5$, negated_conjecture)
$a \cdot b = u$ cnf(multiply_equals_u$_6$, negated_conjecture)
$\neg\, 0 \leq u$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD073-3.p One-sided multiplication of two order relations, part 3
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$a \leq 0$ cnf(less_or_equal$_3$, negated_conjecture)
$b \leq 0$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 0 \leq a \cdot b$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD073-4.p One-sided multiplication of two order relations, part 3
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$a \leq 0$ cnf(less_or_equal$_4$, negated_conjecture)
$b \leq 0$ cnf(less_or_equal$_5$, negated_conjecture)
$a \cdot b = u$ cnf(product$_6$, negated_conjecture)
$\neg\, 0 \leq u$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD074-1.p Two-sided multiplication in an order relation, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$0 \leq c$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, a \cdot c \leq b \cdot c$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD074-2.p Two-sided multiplication in an order relation, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$a \cdot c = u$ cnf(multiply_equals_u$_6$, negated_conjecture)
$b \cdot c = v$ cnf(multiply_equals_v$_7$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_8$, negated_conjecture)
$0 \leq c$ cnf(less_or_equal$_9$, negated_conjecture)
$\neg\, u \leq v$ cnf(not_less_or_equal$_{10}$, negated_conjecture)

FLD074-3.p Two-sided multiplication in an order relation, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$0 \leq c$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, a \cdot c \leq b \cdot c$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD074-4.p Two-sided multiplication in an order relation, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_6$, negated_conjecture)
$0 \leq c$ cnf(less_or_equal$_7$, negated_conjecture)

$a \cdot c{=}u$ cnf(product$_8$, negated_conjecture)
$b \cdot c{=}v$ cnf(product$_9$, negated_conjecture)
$\neg\, u \leq v$ cnf(not_less_or_equal$_{10}$, negated_conjecture)

FLD075-1.p Two-sided multiplication in an order relation, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$c \leq 0$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, b \cdot c \leq a \cdot c$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD075-2.p Two-sided multiplication in an order relation, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$a \cdot c{=}u$ cnf(multiply_equals_u$_6$, negated_conjecture)
$b \cdot c{=}v$ cnf(multiply_equals_v$_7$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_8$, negated_conjecture)
$c \leq 0$ cnf(less_or_equal$_9$, negated_conjecture)
$\neg\, v \leq u$ cnf(not_less_or_equal$_{10}$, negated_conjecture)

FLD075-3.p Two-sided multiplication in an order relation, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$c \leq 0$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, b \cdot c \leq a \cdot c$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD075-4.p Two-sided multiplication in an order relation, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$a \leq b$ cnf(less_or_equal$_6$, negated_conjecture)
$c \leq 0$ cnf(less_or_equal$_7$, negated_conjecture)
$a \cdot c{=}u$ cnf(product$_8$, negated_conjecture)
$b \cdot c{=}v$ cnf(product$_9$, negated_conjecture)
$\neg\, v \leq u$ cnf(not_less_or_equal$_{10}$, negated_conjecture)

FLD076-1.p Two-sided multiplication in an order relation, part 3
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$\neg\, c{=}0$ cnf(c_not_equal_to_additive_identity$_4$, negated_conjecture)
$0 \leq c$ cnf(less_or_equal$_5$, negated_conjecture)
$a \cdot c \leq b \cdot c$ cnf(less_or_equal$_6$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD076-2.p Two-sided multiplication in an order relation, part 3
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)

defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$a \cdot c{=}u$ cnf(multiply_equals_u$_6$, negated_conjecture)
$b \cdot c{=}v$ cnf(multiply_equals_v$_7$, negated_conjecture)
$u \leq v$ cnf(less_or_equal$_8$, negated_conjecture)
$\neg\, c{=}0$ cnf(c_not_equal_to_additive_identity$_9$, negated_conjecture)
$0 \leq c$ cnf(less_or_equal$_{10}$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_{11}$, negated_conjecture)

FLD076-3.p Two-sided multiplication in an order relation, part 3
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$\neg\, 0 + c{=}0$ cnf(not_sum$_4$, negated_conjecture)
$0 \leq c$ cnf(less_or_equal$_5$, negated_conjecture)
$a \cdot c \leq b \cdot c$ cnf(less_or_equal$_6$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD076-4.p Two-sided multiplication in an order relation, part 3
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$\neg\, 0 + c{=}0$ cnf(not_sum$_6$, negated_conjecture)
$0 \leq c$ cnf(less_or_equal$_7$, negated_conjecture)
$a \cdot c{=}u$ cnf(product$_8$, negated_conjecture)
$b \cdot c{=}v$ cnf(product$_9$, negated_conjecture)
$u \leq v$ cnf(less_or_equal$_{10}$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_{11}$, negated_conjecture)

FLD077-1.p Elimination of a product in an order relation, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
$\neg\, c{=}0$ cnf(c_not_equal_to_additive_identity$_4$, negated_conjecture)
$c \leq 0$ cnf(less_or_equal$_5$, negated_conjecture)
$a \cdot c \leq b \cdot c$ cnf(less_or_equal$_6$, negated_conjecture)
$\neg\, b \leq a$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD077-2.p Elimination of a product in an order relation, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$\neg\, c{=}0$ cnf(c_not_equal_to_additive_identity$_6$, negated_conjecture)
$c \leq 0$ cnf(less_or_equal$_7$, negated_conjecture)
$a \cdot c{=}u$ cnf(multiply_equals_u$_8$, negated_conjecture)
$b \cdot c{=}v$ cnf(multiply_equals_v$_9$, negated_conjecture)
$u \leq v$ cnf(less_or_equal$_{10}$, negated_conjecture)
$\neg\, b \leq a$ cnf(not_less_or_equal$_{11}$, negated_conjecture)

FLD077-3.p Elimination of a product in an order relation, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)

$\neg\, 0 + c{=}0$ cnf(not_sum$_4$, negated_conjecture)
$c \leq 0$ cnf(less_or_equal$_5$, negated_conjecture)
$a \cdot c \leq b \cdot c$ cnf(less_or_equal$_6$, negated_conjecture)
$\neg\, b \leq a$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD077-4.p Elimination of a product in an order relation, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$\neg\, 0 + c{=}0$ cnf(not_sum$_6$, negated_conjecture)
$c \leq 0$ cnf(less_or_equal$_7$, negated_conjecture)
$a \cdot c{=}u$ cnf(product$_8$, negated_conjecture)
$b \cdot c{=}v$ cnf(product$_9$, negated_conjecture)
$u \leq v$ cnf(less_or_equal$_{10}$, negated_conjecture)
$\neg\, b \leq a$ cnf(not_less_or_equal$_{11}$, negated_conjecture)

FLD078-1.p Side change in an order relation, multiplicative part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, a \cdot b^{-1} \leq 1$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD078-2.p Side change in an order relation, multiplicative part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_4$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_6$, negated_conjecture)
$a \cdot b^{-1}{=}u$ cnf(multiply_equals_u$_7$, negated_conjecture)
$\neg\, u \leq 1$ cnf(not_less_or_equal$_8$, negated_conjecture)

FLD078-3.p Side change in an order relation, multiplicative part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, 0 + b{=}0$ cnf(not_sum$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, a \cdot b^{-1} \leq 1$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD078-4.p Side change in an order relation, multiplicative part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$\neg\, 0 + b{=}0$ cnf(not_sum$_4$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_6$, negated_conjecture)
$a \cdot b^{-1}{=}u$ cnf(product$_7$, negated_conjecture)
$\neg\, u \leq 1$ cnf(not_less_or_equal$_8$, negated_conjecture)

FLD079-1.p Side change in an order relation, multiplicative part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)

$\neg b{=}0$ cnf(b_not_equal_to_additive_identity$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$a \cdot b^{-1} \leq 1$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg a \leq b$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD079-2.p Side change in an order relation, multiplicative part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$\neg b{=}0$ cnf(b_not_equal_to_additive_identity$_4$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$a \cdot b^{-1}{=}u$ cnf(multiply_equals_u$_6$, negated_conjecture)
$u \leq 1$ cnf(less_or_equal$_7$, negated_conjecture)
$\neg a \leq b$ cnf(not_less_or_equal$_8$, negated_conjecture)

FLD079-3.p Side change in an order relation, multiplicative part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg 0 + b{=}0$ cnf(not_sum$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$a \cdot b^{-1} \leq 1$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg a \leq b$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD079-4.p Side change in an order relation, multiplicative part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$\neg 0 + b{=}0$ cnf(not_sum$_4$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$a \cdot b^{-1}{=}u$ cnf(product$_6$, negated_conjecture)
$u \leq 1$ cnf(less_or_equal$_7$, negated_conjecture)
$\neg a \leq b$ cnf(not_less_or_equal$_8$, negated_conjecture)

FLD080-1.p The square of an element is always greater or equal 0
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg 0 \leq a \cdot a$ cnf(not_less_or_equal$_2$, negated_conjecture)

FLD080-2.p The square of an element is always greater or equal 0
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$a \cdot a{=}u$ cnf(multiply_equals_u$_3$, negated_conjecture)
$\neg 0 \leq u$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD080-3.p The square of an element is always greater or equal 0
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg 0 \leq a \cdot a$ cnf(not_less_or_equal$_2$, negated_conjecture)

FLD080-4.p The square of an element is always greater or equal 0
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
$a \cdot a{=}u$ cnf(product$_3$, negated_conjecture)
$\neg 0 \leq u$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD081-1.p Two-sided multiplication of two order relations
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)

defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_5$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_6$, negated_conjecture)
$0 \leq c$ cnf(less_or_equal$_7$, negated_conjecture)
$c \leq d$ cnf(less_or_equal$_8$, negated_conjecture)
$\neg\, a \cdot c \leq d \cdot b$ cnf(not_less_or_equal$_9$, negated_conjecture)

FLD081-2.p Two-sided multiplication of two order relations
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_7$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_8$, negated_conjecture)
$0 \leq c$ cnf(less_or_equal$_9$, negated_conjecture)
$c \leq d$ cnf(less_or_equal$_{10}$, negated_conjecture)
$a \cdot c = u$ cnf(multiply_equals_u$_{11}$, negated_conjecture)
$d \cdot b = v$ cnf(multiply_equals_v$_{12}$, negated_conjecture)
$\neg\, u \leq v$ cnf(not_less_or_equal$_{13}$, negated_conjecture)

FLD081-3.p Two-sided multiplication of two order relations
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_5$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_6$, negated_conjecture)
$0 \leq c$ cnf(less_or_equal$_7$, negated_conjecture)
$c \leq d$ cnf(less_or_equal$_8$, negated_conjecture)
$\neg\, a \cdot c \leq d \cdot b$ cnf(not_less_or_equal$_9$, negated_conjecture)

FLD081-4.p Two-sided multiplication of two order relations
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_7$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_8$, negated_conjecture)
$0 \leq c$ cnf(less_or_equal$_9$, negated_conjecture)
$c \leq d$ cnf(less_or_equal$_{10}$, negated_conjecture)
$a \cdot c = u$ cnf(product$_{11}$, negated_conjecture)
$d \cdot b = v$ cnf(product$_{12}$, negated_conjecture)
$\neg\, u \leq v$ cnf(not_less_or_equal$_{13}$, negated_conjecture)

FLD082-1.p Compatibility of order and multiplicative inverses, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, a = 0$ cnf(a_not_equal_to_additive_identity$_3$, negated_conjecture)
$0 \leq a$ cnf(less_or_equal$_4$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, b^{-1} \leq a^{-1}$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD082-3.p Compatibility of order and multiplicative inverses, part 1

include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, 0 + a = 0$ cnf(not_sum$_3$, negated_conjecture)
$0 \leq a$ cnf(less_or_equal$_4$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, b^{-1} \leq a^{-1}$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD083-1.p Compatibility of order and multiplicative inverses, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, b = 0$ cnf(b_not_equal_to_additive_identity$_3$, negated_conjecture)
$b \leq 0$ cnf(less_or_equal$_4$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, b^{-1} \leq a^{-1}$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD083-3.p Compatibility of order and multiplicative inverses, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, 0 + b = 0$ cnf(not_sum$_3$, negated_conjecture)
$b \leq 0$ cnf(less_or_equal$_4$, negated_conjecture)
$a \leq b$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, b^{-1} \leq a^{-1}$ cnf(not_less_or_equal$_6$, negated_conjecture)

FLD084-1.p Elimination of multiplicative inverses in an order, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, b = 0$ cnf(b_not_equal_to_additive_identity$_3$, negated_conjecture)
$\neg\, a = 0$ cnf(a_not_equal_to_additive_identity$_4$, negated_conjecture)
$b^{-1} \leq a^{-1}$ cnf(less_or_equal$_5$, negated_conjecture)
$0 \leq b^{-1}$ cnf(less_or_equal$_6$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD084-3.p Elimination of multiplicative inverses in an order, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, 0 + b = 0$ cnf(not_sum$_3$, negated_conjecture)
$\neg\, 0 + a = 0$ cnf(not_sum$_4$, negated_conjecture)
$b^{-1} \leq a^{-1}$ cnf(less_or_equal$_5$, negated_conjecture)
$0 \leq b^{-1}$ cnf(less_or_equal$_6$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD085-1.p Elimination of multiplicative inverses in an order, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, a = 0$ cnf(a_not_equal_to_additive_identity$_3$, negated_conjecture)
$\neg\, b = 0$ cnf(b_not_equal_to_additive_identity$_4$, negated_conjecture)
$b^{-1} \leq a^{-1}$ cnf(less_or_equal$_5$, negated_conjecture)
$a^{-1} \leq 0$ cnf(less_or_equal$_6$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD085-3.p Elimination of multiplicative inverses in an order, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$\neg\, 0 + a = 0$ cnf(not_sum$_3$, negated_conjecture)
$\neg\, 0 + b = 0$ cnf(not_sum$_4$, negated_conjecture)
$b^{-1} \leq a^{-1}$ cnf(less_or_equal$_5$, negated_conjecture)

$a^{-1} \leq 0$ cnf(less_or_equal$_6$, negated_conjecture)
$\neg\, a \leq b$ cnf(not_less_or_equal$_7$, negated_conjecture)

FLD086-1.p Compatibility of order and multiplicative inverses, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_2$, negated_conjecture)
$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, 0 \leq a^{-1}$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD086-3.p Compatibility of order and multiplicative inverses, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf(not_sum$_2$, negated_conjecture)
$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, 0 \leq a^{-1}$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD087-1.p Elimination of a multiplicative inverse in an order, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_2$, negated_conjecture)
$0 \leq a^{-1}$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, 0 \leq a$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD087-3.p Elimination of a multiplicative inverse in an order, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf(not_sum$_2$, negated_conjecture)
$0 \leq a^{-1}$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, 0 \leq a$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD088-1.p Compatibility of order and multiplicative inverses, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_2$, negated_conjecture)
$a \leq 0$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a^{-1} \leq 0$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD088-3.p Compatibility of order and multiplicative inverses, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf(not_sum$_2$, negated_conjecture)
$a \leq 0$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a^{-1} \leq 0$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD089-1.p Elimination of a multiplicative inverse in an order, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_2$, negated_conjecture)
$a^{-1} \leq 0$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a \leq 0$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD089-3.p Elimination of a multiplicative inverse in an order, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf(not_sum$_2$, negated_conjecture)
$a^{-1} \leq 0$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a \leq 0$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD090-1.p A characterization of 1 with help of the order relation
include('Axioms/FLD001-0.ax')
defined(m) cnf(m_is_defined, hypothesis)
$m \cdot x \leq x$ cnf(less_or_equal$_2$, negated_conjecture)
$\neg\, m{=}1$ cnf(m_not_equal_to_multiplicative_identity$_3$, negated_conjecture)

FLD090-3.p A characterization of 1 with help of the order relation
include('Axioms/FLD002-0.ax')
defined(m) cnf(m_is_defined, hypothesis)
$m \cdot x{=}y \;\Rightarrow\; y \leq x$ cnf(less_or_equal_or_not_product$_2$, negated_conjecture)
$\neg\, 0 + m{=}1$ cnf(not_sum$_3$, negated_conjecture)

FLD091-1.p One-sided Elimination of a multiplicative inverse, part 1
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_2$, negated_conjecture)
$1 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a^{-1} \leq 1$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD091-3.p One-sided Elimination of a multiplicative inverse, part 1
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf(not_sum$_2$, negated_conjecture)
$1 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a^{-1} \leq 1$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD092-1.p One-sided Elimination of a multiplicative inverse, part 2
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_2$, negated_conjecture)
$a \leq -1$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg -1 \leq a^{-1}$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD092-3.p One-sided Elimination of a multiplicative inverse, part 2
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf(not_sum$_2$, negated_conjecture)
$a \leq -1$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg -1 \leq a^{-1}$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD093-1.p One-sided Elimination of a multiplicative inverse, part 3
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_2$, negated_conjecture)
$1 \leq a^{-1}$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a \leq 1$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD093-3.p One-sided Elimination of a multiplicative inverse, part 3
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf(not_sum$_2$, negated_conjecture)
$1 \leq a^{-1}$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a \leq 1$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD094-1.p One-sided Elimination of a multiplicative inverse, part 4
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, a{=}0$ cnf(a_not_equal_to_additive_identity$_2$, negated_conjecture)
$a^{-1} \leq -1$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg -1 \leq a$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD094-3.p One-sided Elimination of a multiplicative inverse, part 4
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$\neg\, 0 + a{=}0$ cnf(not_sum$_2$, negated_conjecture)
$a^{-1} \leq -1$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg -1 \leq a$ cnf(not_less_or_equal$_4$, negated_conjecture)

FLD095-1.p Difficult inequality
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)

defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_5$, negated_conjecture)
$\neg\, d{=}0$ cnf(d_not_equal_to_additive_identity$_6$, negated_conjecture)
$b \leq 0$ cnf(less_or_equal$_7$, negated_conjecture)
$0 \leq d$ cnf(less_or_equal$_8$, negated_conjecture)
$a \cdot b^{-1} \leq c \cdot d^{-1}$ cnf(less_or_equal$_9$, negated_conjecture)
$\neg\, a \cdot b^{-1} \leq (a + c) \cdot (b + d)^{-1}$ cnf(not_less_or_equal$_{10}$, negated_conjecture)

FLD095-2.p Difficult inequality
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
defined(w) cnf(w_is_defined, hypothesis)
$\neg\, b{=}0$ cnf(b_not_equal_to_additive_identity$_{10}$, negated_conjecture)
$\neg\, d{=}0$ cnf(d_not_equal_to_additive_identity$_{11}$, negated_conjecture)
$b \leq 0$ cnf(less_or_equal$_{12}$, negated_conjecture)
$0 \leq d$ cnf(less_or_equal$_{13}$, negated_conjecture)
$a \cdot b^{-1}{=}u$ cnf(multiply_equals_u$_{14}$, negated_conjecture)
$c \cdot d^{-1}{=}v$ cnf(multiply_equals_v$_{15}$, negated_conjecture)
$a + c{=}s$ cnf(add_equals_s$_{16}$, negated_conjecture)
$b + d{=}t$ cnf(add_equals_t$_{17}$, negated_conjecture)
$s \cdot t^{-1}{=}w$ cnf(multiply_equals_w$_{18}$, negated_conjecture)
$u \leq v$ cnf(less_or_equal$_{19}$, negated_conjecture)
$\neg\, u \leq w$ cnf(not_less_or_equal$_{20}$, negated_conjecture)

FLD095-3.p Difficult inequality
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, 0 + b{=}0$ cnf(not_sum$_5$, negated_conjecture)
$\neg\, 0 + d{=}0$ cnf(not_sum$_6$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_7$, negated_conjecture)
$0 \leq d$ cnf(less_or_equal$_8$, negated_conjecture)
$a \cdot b^{-1} \leq c \cdot d^{-1}$ cnf(less_or_equal$_9$, negated_conjecture)
$\neg\, a \cdot b^{-1} \leq (a + c) \cdot (b + d)^{-1}$ cnf(not_less_or_equal$_{10}$, negated_conjecture)

FLD095-4.p Difficult inequality
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
defined(w) cnf(w_is_defined, hypothesis)
$\neg\, 0 + b{=}0$ cnf(not_sum$_{10}$, negated_conjecture)
$\neg\, 0 + d{=}0$ cnf(not_sum$_{11}$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_{12}$, negated_conjecture)
$0 \leq d$ cnf(less_or_equal$_{13}$, negated_conjecture)

$a \cdot b^{-1}=u$ cnf(product$_{14}$, negated_conjecture)
$c \cdot d^{-1}=v$ cnf(product$_{15}$, negated_conjecture)
$a + c=s$ cnf(sum$_{16}$, negated_conjecture)
$b + d=t$ cnf(sum$_{17}$, negated_conjecture)
$s \cdot t^{-1}=w$ cnf(product$_{18}$, negated_conjecture)
$u \leq v$ cnf(less_or_equal$_{19}$, negated_conjecture)
$\neg\, u \leq w$ cnf(not_less_or_equal$_{20}$, negated_conjecture)

FLD096-1.p Difficult inequality
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, b=0$ cnf(b_not_equal_to_additive_identity$_{5}$, negated_conjecture)
$\neg\, d=0$ cnf(d_not_equal_to_additive_identity$_{6}$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_{7}$, negated_conjecture)
$0 \leq d$ cnf(less_or_equal$_{8}$, negated_conjecture)
$a \cdot b^{-1} \leq c \cdot d^{-1}$ cnf(less_or_equal$_{9}$, negated_conjecture)
$\neg\, (a + c) \cdot (b + d)^{-1} \leq c \cdot d^{-1}$ cnf(not_less_or_equal$_{10}$, negated_conjecture)

FLD096-2.p Difficult inequality
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
defined(w) cnf(w_is_defined, hypothesis)
$\neg\, b=0$ cnf(b_not_equal_to_additive_identity$_{10}$, negated_conjecture)
$\neg\, d=0$ cnf(d_not_equal_to_additive_identity$_{11}$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_{12}$, negated_conjecture)
$0 \leq d$ cnf(less_or_equal$_{13}$, negated_conjecture)
$a \cdot b^{-1}=u$ cnf(multiply_equals_u$_{14}$, negated_conjecture)
$c \cdot d^{-1}=v$ cnf(multiply_equals_v$_{15}$, negated_conjecture)
$a + c=s$ cnf(add_equals_s$_{16}$, negated_conjecture)
$b + d=t$ cnf(add_equals_t$_{17}$, negated_conjecture)
$s \cdot t^{-1}=w$ cnf(multiply_equals_w$_{18}$, negated_conjecture)
$u \leq v$ cnf(less_or_equal$_{19}$, negated_conjecture)
$\neg\, w \leq v$ cnf(not_less_or_equal$_{20}$, negated_conjecture)

FLD096-3.p Difficult inequality
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
$\neg\, 0 + b=0$ cnf(not_sum$_{5}$, negated_conjecture)
$\neg\, 0 + d=0$ cnf(not_sum$_{6}$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_{7}$, negated_conjecture)
$0 \leq d$ cnf(less_or_equal$_{8}$, negated_conjecture)
$a \cdot b^{-1} \leq c \cdot d^{-1}$ cnf(less_or_equal$_{9}$, negated_conjecture)
$\neg\, (a + c) \cdot (b + d)^{-1} \leq c \cdot d^{-1}$ cnf(not_less_or_equal$_{10}$, negated_conjecture)

FLD096-4.p Difficult inequality
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)

defined(c) cnf(c_is_defined, hypothesis)
defined(d) cnf(d_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
defined(w) cnf(w_is_defined, hypothesis)
$\neg\, 0 + b = 0$ cnf(not_sum$_{10}$, negated_conjecture)
$\neg\, 0 + d = 0$ cnf(not_sum$_{11}$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_{12}$, negated_conjecture)
$0 \leq d$ cnf(less_or_equal$_{13}$, negated_conjecture)
$a \cdot b^{-1} = u$ cnf(product$_{14}$, negated_conjecture)
$c \cdot d^{-1} = v$ cnf(product$_{15}$, negated_conjecture)
$a + c = s$ cnf(sum$_{16}$, negated_conjecture)
$b + d = t$ cnf(sum$_{17}$, negated_conjecture)
$s \cdot t^{-1} = w$ cnf(product$_{18}$, negated_conjecture)
$u \leq v$ cnf(less_or_equal$_{19}$, negated_conjecture)
$\neg\, w \leq v$ cnf(not_less_or_equal$_{20}$, negated_conjecture)

FLD097-1.p Difficult inequality
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 1 + (a + b) \leq (1 + a) \cdot (1 + b)$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD097-2.p Difficult inequality
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
defined(w) cnf(w_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_8$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_9$, negated_conjecture)
$1 + a = u$ cnf(add_equals_u$_{10}$, negated_conjecture)
$1 + b = v$ cnf(add_equals_v$_{11}$, negated_conjecture)
$u \cdot v = w$ cnf(multiply_equals_w$_{12}$, negated_conjecture)
$a + b = s$ cnf(add_equals_s$_{13}$, negated_conjecture)
$1 + s = t$ cnf(add_equals_t$_{14}$, negated_conjecture)
$\neg\, t \leq w$ cnf(not_less_or_equal$_{15}$, negated_conjecture)

FLD097-3.p Difficult inequality
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 1 + (a + b) \leq (1 + a) \cdot (1 + b)$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD097-4.p Difficult inequality
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
defined(w) cnf(w_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)

defined(t) cnf(t_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_8$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_9$, negated_conjecture)
$1 + a = u$ cnf(sum$_{10}$, negated_conjecture)
$1 + b = v$ cnf(sum$_{11}$, negated_conjecture)
$u \cdot v = w$ cnf(product$_{12}$, negated_conjecture)
$a + b = s$ cnf(sum$_{13}$, negated_conjecture)
$1 + s = t$ cnf(sum$_{14}$, negated_conjecture)
$\neg\, t \leq w$ cnf(not_less_or_equal$_{15}$, negated_conjecture)

FLD098-1.p Difficult inequality
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 1 + -(a + b) \leq (1 + -a) \cdot (1 + -b)$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD098-2.p Difficult inequality
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
defined(w) cnf(w_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_8$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_9$, negated_conjecture)
$1 + -a = u$ cnf(add_equals_u$_{10}$, negated_conjecture)
$1 + -b = v$ cnf(add_equals_v$_{11}$, negated_conjecture)
$u \cdot v = w$ cnf(multiply_equals_w$_{12}$, negated_conjecture)
$a + b = s$ cnf(add_equals_s$_{13}$, negated_conjecture)
$1 + -s = t$ cnf(add_equals_t$_{14}$, negated_conjecture)
$\neg\, t \leq w$ cnf(not_less_or_equal$_{15}$, negated_conjecture)

FLD098-3.p Difficult inequality
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_3$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 1 + -(a + b) \leq (1 + -a) \cdot (1 + -b)$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD098-4.p Difficult inequality
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
defined(w) cnf(w_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_8$, negated_conjecture)
$0 \leq b$ cnf(less_or_equal$_9$, negated_conjecture)
$1 + -a = u$ cnf(sum$_{10}$, negated_conjecture)
$1 + -b = v$ cnf(sum$_{11}$, negated_conjecture)
$u \cdot v = w$ cnf(product$_{12}$, negated_conjecture)
$a + b = s$ cnf(sum$_{13}$, negated_conjecture)
$1 + -s = t$ cnf(sum$_{14}$, negated_conjecture)
$\neg\, t \leq w$ cnf(not_less_or_equal$_{15}$, negated_conjecture)

FLD099-1.p Difficult inequality
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_2$, negated_conjecture)
$a \leq 1$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, a{=}1$ cnf(a_not_equal_to_multiplicative_identity$_4$, negated_conjecture)
$\neg\, 1 + a \leq (1 + -a)^{-1}$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD099-2.p Difficult inequality
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_4$, negated_conjecture)
$a \leq 1$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, a{=}1$ cnf(a_not_equal_to_multiplicative_identity$_6$, negated_conjecture)
$1 + a{=}u$ cnf(add_equals_u$_7$, negated_conjecture)
$1 + -a{=}v$ cnf(add_equals_v$_8$, negated_conjecture)
$\neg\, u \leq v^{-1}$ cnf(not_less_or_equal$_9$, negated_conjecture)

FLD099-3.p Difficult inequality
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_2$, negated_conjecture)
$a \leq 1$ cnf(less_or_equal$_3$, negated_conjecture)
$\neg\, 0 + a{=}1$ cnf(not_sum$_4$, negated_conjecture)
$\neg\, 1 + a \leq (1 + -a)^{-1}$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD099-4.p Difficult inequality
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
$0 \leq a$ cnf(less_or_equal$_4$, negated_conjecture)
$a \leq 1$ cnf(less_or_equal$_5$, negated_conjecture)
$\neg\, 0 + a{=}1$ cnf(not_sum$_6$, negated_conjecture)
$1 + a{=}u$ cnf(sum$_7$, negated_conjecture)
$1 + -a{=}v$ cnf(sum$_8$, negated_conjecture)
$\neg\, u \leq v^{-1}$ cnf(not_less_or_equal$_9$, negated_conjecture)

FLD100-1.p Difficult inequality
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$a \leq 0$ cnf(less_or_equal$_3$, negated_conjecture)
$b \leq 0$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 1 + (a + b) \leq (1 + a) \cdot (1 + b)$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD100-2.p Difficult inequality
include('Axioms/FLD001-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
defined(w) cnf(w_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$a \leq 0$ cnf(less_or_equal$_8$, negated_conjecture)
$b \leq 0$ cnf(less_or_equal$_9$, negated_conjecture)
$1 + a{=}u$ cnf(add_equals_u$_{10}$, negated_conjecture)
$1 + b{=}v$ cnf(add_equals_v$_{11}$, negated_conjecture)
$u \cdot v{=}w$ cnf(multiply_equals_w$_{12}$, negated_conjecture)

$a + b = s$ cnf(add_equals_s$_{13}$, negated_conjecture)
$1 + s = t$ cnf(add_equals_t$_{14}$, negated_conjecture)
$\neg\, t \leq w$ cnf(not_less_or_equal$_{15}$, negated_conjecture)

FLD100-3.p Difficult inequality
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
$a \leq 0$ cnf(less_or_equal$_3$, negated_conjecture)
$b \leq 0$ cnf(less_or_equal$_4$, negated_conjecture)
$\neg\, 1 + (a + b) \leq (1 + a) \cdot (1 + b)$ cnf(not_less_or_equal$_5$, negated_conjecture)

FLD100-4.p Difficult inequality
include('Axioms/FLD002-0.ax')
defined(a) cnf(a_is_defined, hypothesis)
defined(b) cnf(b_is_defined, hypothesis)
defined(u) cnf(u_is_defined, hypothesis)
defined(v) cnf(v_is_defined, hypothesis)
defined(w) cnf(w_is_defined, hypothesis)
defined(s) cnf(s_is_defined, hypothesis)
defined(t) cnf(t_is_defined, hypothesis)
$a \leq 0$ cnf(less_or_equal$_8$, negated_conjecture)
$b \leq 0$ cnf(less_or_equal$_9$, negated_conjecture)
$1 + a = u$ cnf(sum$_{10}$, negated_conjecture)
$1 + b = v$ cnf(sum$_{11}$, negated_conjecture)
$u \cdot v = w$ cnf(product$_{12}$, negated_conjecture)
$a + b = s$ cnf(sum$_{13}$, negated_conjecture)
$1 + s = t$ cnf(sum$_{14}$, negated_conjecture)
$\neg\, t \leq w$ cnf(not_less_or_equal$_{15}$, negated_conjecture)

FLD101-1.p Ordered field axioms (axiom formulation glxx)
include('Axioms/FLD001-0.ax')

FLD102-1.p Ordered field axioms (axiom formulation re)
include('Axioms/FLD002-0.ax')