MAIS wk 1

Recall: warm-up
Factoring Quadratics

Today: Algebraic Fractions

ex $12x^2 - 25x - 7 = 12x^2 - 28x + 3x - 7 = 4x(3x-7) + (3x-7)\cdot 1$

$= (3x-7)(4x+1)$

AC: -84

Factors: 1, 2, 3, 4, 6, 12
1, 7,
14, 21, 28, 42

Today: Algebraic Fractions

Challenge! deal w/ compound fractions:

Key: $a^2 = \frac{1}{a^{-2}}$

but

$\frac{a^2 + D}{b} = \frac{D}{\frac{1}{a^{-2}} + b}$

but $\frac{a^2 \cdot D}{b} = \frac{\frac{1}{a^{-2}} \cdot D}{b} = \frac{1}{a^{-2}} \cdot \frac{D}{b} = \frac{D}{a^{-2}b}$

ex (#5)

note: there's + or subtraction, so bases move across main division bar just be changing the sign of their exponent

$$\frac{uv^7}{ab^8} \div \left(\frac{u^{-1}v}{a^{-1}b}\right) = \frac{uv^7}{ab^8} \cdot \frac{a^{-1}b}{u^{-1}v} = \frac{uv^7}{ab^8} \cdot \frac{ub}{av} = \frac{u^2bv^7}{a^2b^8v}$$

$$= \frac{u^2v^6}{a^2b^7}$$

easier $\frac{2c^{-1}c^3}{5} = \frac{2c^2}{5}$

ex $\frac{8ac^{-1}}{20ac^{-3}} = \frac{2c^3}{5c^1} = \frac{2}{5}c^2$

ex $\frac{a^{1/5}b^{-2}}{ab} = \frac{1}{a^{-(1/5)}ab^2} = \frac{1}{a^{-(1/5)+1}b^{1+2}} = \frac{1}{a^{4/5}b^3}$

$\frac{-1}{5} + 1\cdot\frac{5}{5}$

$\frac{-1+5}{5} = \frac{4}{5}$

Enter into computer

a ^ (4/5)

a ^ 4/5 = $a^{\frac{4}{5}}$

Complex Fraction

Strategy

① get it into a single fraction via common denominators

② Recall: $\dfrac{\frac{A}{B}}{\frac{C}{B}} = \dfrac{A}{C}$

(ex)

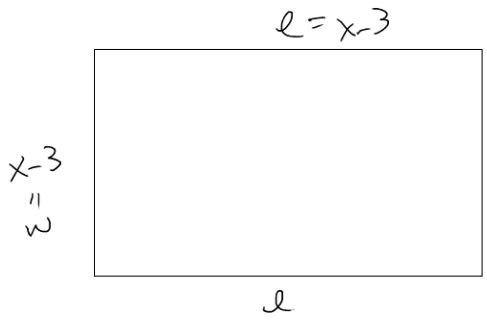
$$\frac{\frac{x}{x}\frac{x}{y} - \frac{1}{x}\frac{y}{y}}{\frac{y}{y}\frac{y}{x} - \frac{1}{y}\frac{x}{x}} = \frac{\frac{x^2-y}{xy}}{\frac{y^2-x}{xy}}$$

$$= \frac{x^2-y}{xy} \cdot \frac{xy}{y^2-x} = \frac{x^2-y}{y^2-x}$$

(ex) simplify

$$\frac{x - \frac{4}{y}}{x + \frac{7}{y}} = \frac{\frac{y}{y}\cdot\frac{x}{1} - \frac{4}{y}}{\frac{y}{y}\cdot\frac{x}{1} + \frac{7}{y}} = \frac{\frac{yx}{y} - \frac{4}{y}}{\frac{yx}{y} + \frac{7}{y}} = \frac{\frac{yx-4}{y}}{\frac{yx+7}{y}} = \frac{yx-4}{yx+7}$$

Detail re' #16 on HW01



$A = x^2 - 11x + 24 \quad ft^2$

Find: Perimeter: $2w + 2\ell = 2(x-3) + 2(x-8)$ simplify.

① $A = \ell w$

② $x^2 - 11x + 24 = \ell w = \ell(x-3)$

③ = Factor

$x^2 - 8x - 3x + 24$

$x(x-8) - 3(x-8) = (x-8)(x-3)$