January 26, 2016

Honors Algebra II

Notes Section 5.5

Add and Subtract Rational Expressions

EXAMPLE 1 Add or Subtract with LIKE denominators.

a) $\frac{7}{4x} + \frac{3}{4x}$ _____

b) $\frac{2x}{x+6} - \frac{5}{x+6}$ _____

EXAMPLE 2 Find the least common denominator.

a) $4x^2 - 16$ and $6x^2 - 24x + 24$ LCD: _____

b) $5x^2 - 45$ and $4x^2 + 24x + 36$ LCD: _____

c) $5x^3$ and $10x^2 - 15x$ LCD: _____

d) $8x - 16$ and $12x^2 + 12x - 72$ LCD: _____

EXAMPLE 3 Add with unlike denominators.

a) $\frac{7}{9x^2} + \frac{x}{3x^2 + 3x}$ _____

LCD: _____

b) $\frac{1}{3x^2} + \frac{x}{9x^2 - 12x}$ _____

LCD: _____

c) $\frac{x}{x^2 - x - 12} + \frac{5}{12x - 48}$ _____

LCD: _____

EXAMPLE 4 Subtract with unlike denominators.

a) $\frac{3}{4x} - \frac{1}{7}$ _____

LCD: _____

b) $\frac{x + 1}{x^2 + 4x + 4} - \frac{6}{x^2 - 4}$ _____

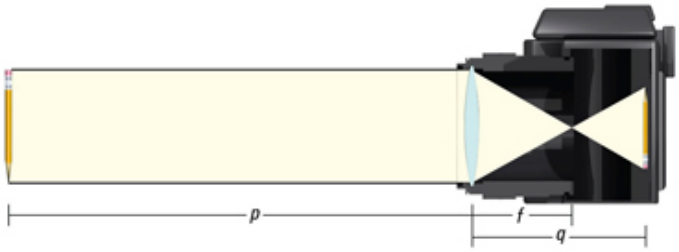
LCD: _____

c) $\frac{x + 2}{2x - 2} - \frac{-2x-1}{x^2 - 4x + 3}$ _____

LCD: _____

EXAMPLE 5 Let f be the focal length of a thin camera lens, p be the distance between an object being photographed and the lens, and q be the distance between the lens and the film. For the photograph to be in focus, the variables should satisfy

Lens equation: $f = \dfrac{1}{\frac{1}{p} + \frac{1}{q}}$



Simplify.

EXAMPLE 6 Simplify the complex fractions.

a) $\dfrac{\frac{2}{x} - 4}{\frac{2}{x} + 3}$

_____

b) $\dfrac{\frac{x}{6} - \frac{x}{3}}{\frac{x}{5} - \frac{7}{10}}$

_____

c) $\dfrac{\dfrac{5}{x+4}}{\dfrac{1}{x+4}+\dfrac{2}{x}}$

d) $\dfrac{\dfrac{3}{x+5}}{\dfrac{2}{x-3}+\dfrac{1}{x+5}}$