

QUICK CHECK PRACTICE QUIZ

Name Key

Recall -

You can multiply and divide anything. YOU DO NOT NEED TO GET AN LCD TO MULTIPLY OR DIVIDE!!!

Simplify each expression.

1) $\frac{8x-4}{2x^2+9x-5}$ state excluded value(s)

$= \frac{4(2x-1)}{(2x-1)(x+5)}$

$x \neq \frac{1}{2}$
 $x \neq -5$
 $= \frac{4}{x+5}$

2) $\frac{4x^2-20x+25}{x^2-4x} \cdot \frac{3x-12}{2x-5}$

$= \frac{(2x-5)(2x-5) \cdot 3(x-4)}{x(x-4)(2x-5)}$

$x \neq 0, 4, 5/2$

$= \frac{3(2x-5)}{x}$

3) $\frac{x^2-2x-3}{x^2-x-2} \div \frac{x^2+2x-15}{x^2+x-6}$

$\frac{(x-3)(x+1)}{(x-2)(x+1)} \cdot \frac{(x+3)(x-2)}{(x+5)(x-3)}$

$= \frac{x+3}{x+5}$

$x \neq 2, -1, -5, 3$

4) Rewrite an equivalent expression for the flip flop $5-x = -1(x-5)$

RECALL TO ADD OR SUBTRACT, YOU MUST FIND THE LCD. Then you must use your knowledge of "1" to rewrite over an LCD. BE SURE TO DISTRIBUTE THE MINUS SYMBOL WITH THE SECOND FRACTION WHEN SUBTRACTING!

5) $\frac{x+7}{x^2+13x+42} - \frac{10x}{x^2+8x+7}$

$\frac{(x+1)(x+7)}{(x+1)(x+7)(x+6)}$

$-\frac{10x}{(x+7)(x+1)(x+6)}$

LCD is

$(x-7)(x+6)(x+1)$

$= \frac{x^2+8x+7 - [10x^2+60x]}{\text{den}}$

$= \frac{x^2+8x+7-10x^2-60x}{\text{den}}$

$= \frac{-9x^2-52x+7}{\text{den}} = -\frac{(9x^2+52x+7)}{(x+1)(x+6)(x-7)}$

Ms. Miller suggests rewriting a complex fraction as one fraction divided by another fraction...

$$6) \frac{\frac{1}{2x} + \frac{2}{3}}{\frac{x-1}{x-3}} = \left[\frac{1}{2x} + \frac{2}{3} \right] \div \left[\frac{x-1}{x-3} \right]$$

$$\left[\frac{3 + 4x}{6x} \right] \cdot \left[\frac{x-3}{x-1} \right] = \frac{(x-3)(4x+3)}{6x(x-1)}$$

When solving an equation, our goal is to eliminate the denominator – get rid of the fraction! We can do that by multiplying both sides, each and every term by the LCD and dividing out all denominators!!!

Solve each equation or inequality.

$$7) \frac{x+2}{x-3} + \frac{x}{5} = \frac{5}{x-3}$$

$$5(x-3)$$

$$5(x+2) + x(x-3) = 5 \cdot 5$$

$$5x + 10 + x^2 - 3x = 25$$

$$x^2 + 2x - 15 = 0$$

$$(x+5)(x-3) = 0$$

$$x = -5 \quad x = 3$$

$$8) \frac{8}{x-5} - \frac{9}{x-4} = \frac{5}{x^2 - 9x + 20}$$

$$(x-5)(x-4)$$

$$8(x-4) - 9(x-5) = 5$$

$$8x - 32 - 9x + 45 = 5$$

$$-1x + 13 = 5$$

$$-1x = -8$$

$$x = 8 \quad \checkmark$$

$$9) \frac{7}{x+3} \leq -5$$

$$\frac{7}{x+3} + 5 \leq 0$$

$$\frac{7 + 5x + 15}{x+3} \leq 0$$

$$\frac{5x + 22}{x+3} \leq 0$$

so $(-\frac{22}{5}, 3)$

$$10) \frac{x+12}{x+2} \geq 5$$

$$\frac{x+12 - 5x - 10}{x+2} \geq 0$$

$$\frac{-4x + 2}{x+2} \geq 0$$

$$\frac{-2(2x-1)}{x+2} \geq 0$$

$$11) \frac{x-2}{x+2} + \frac{1}{x-2} > \frac{x-4}{x-2}$$

$$x^2 - 4x + 4 + x + 2 - [(x-4)(x+2)] > 0$$

$$x^2 - 3x + 6 - (x^2 - 2x - 8) > 0$$

$$-1x + 14 > 0$$

$$\frac{(x+2)(x-2)}{(-\infty, -2) \cup (14, \infty)}$$

$(-2, \frac{1}{2})$