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①

Questions about the quiz.

Equation is  $4x + 5y = 60$

Let  $x=0, \dots$

Let  $y=0, \dots$

x-intercept

$(15, 0)$

Let  $y=0$

$4x + 5(0) = 60$

$\frac{4x}{4} = \frac{60}{4}$

$x = 15$

y-intercept

$(0, 12)$

Let  $x=0$

$4(0) + 5y = 60$

$\frac{5y}{5} = \frac{60}{5}$

$y = 12$

Web assign Questions

Ex:  $\frac{7}{3x+1} - \frac{27x}{3x-1} = -9$

1) Find LCM of denominators

2) Multiply each term by the LCM

LCM  $\rightarrow \frac{(3x+1)(3x-1)}{1}$

We put it over 1

so that we can multiply our fractions.

$$\frac{(\cancel{3x+1})(3x-1)}{1} \cdot \frac{7}{\cancel{3x+1}} - \frac{(\cancel{3x+1})(\cancel{3x+1})}{1} \cdot \frac{27x}{\cancel{3x+1}}$$

other side of equal sign

$$= -9(3x+1)(3x-1)$$

$$7(3x-1) - 27x(3x+1) = -9(3x+1)(3x-1)$$

$$21x - 7 - 81x^2 - 27x = -9(9x^2 - 1)$$

$$21x - 7 - 81x^2 - 27x = -81x^2 + 9$$
$$+ 81x^2 \qquad \qquad \qquad + 81x^2$$

$$\underline{21x} - 7 - \underline{27x} = 9$$

$$\begin{array}{r} -6x - 7 = 9 \\ \quad +7 \quad +7 \\ \hline \end{array}$$

$$\frac{-6x}{-6} = \frac{16}{-6}$$

$$x = -\frac{16}{6} \text{ or } -\frac{8}{3}$$

(2)

Ex:

(3)

$$\frac{1}{x-4} + \frac{9}{x+9} = \frac{10}{x^2 + 5x - 36}$$

← Factor this so we can see its factors to come up with the LCM.

$$\frac{1}{x-4} + \frac{9}{x+9} = \frac{10}{(x+9)(x-4)}$$

$$\text{LCM} \rightarrow \frac{(x-4)(x+9)}{1}$$

$$\frac{\cancel{(x-4)}(x+9)}{1} \cdot \frac{1}{\cancel{x-4}} + \frac{(x-4)\cancel{(x+9)}}{1} \cdot \frac{9}{\cancel{x+9}} = \frac{\cancel{(x-4)}\cancel{(x+9)}}{1} \cdot \frac{10}{\cancel{(x+9)}\cancel{(x-4)}}$$

$$1(x+9) + 9(x-4) = 10$$

$$x+9 + 9x - 36 = 10$$

$$10x - 27 = 10$$

$$\begin{array}{r} + 27 \quad + 27 \\ \hline \end{array}$$

$$\frac{10x}{10} = \frac{37}{10}$$

$$x = \frac{37}{10} \text{ or } 3.7$$

# Considering the Domain

4

Note to Self

$$\frac{x}{x+4} + \frac{4}{x+4} = 3$$

The denominator cannot be 0. So

$$x \neq -4.$$

If you solve for  $x$  and  $x$  is equal to a number that makes the denominator 0 then there are no solutions.

Ex:  $\frac{x}{x+4} + \frac{4}{x+4} = 3$  LCM  $\rightarrow x+4$

$$\frac{\cancel{x+4}}{1} \cdot \frac{x}{\cancel{x+4}} + \frac{\cancel{x+4}}{1} \cdot \frac{4}{\cancel{x+4}} = 3(x+4)$$

$$x + 4 = 3(x+4)$$

No Solution

$$\begin{array}{r} x+4 = 3x+12 \\ -x \qquad -x \\ \hline \end{array}$$

$$\begin{array}{r} 4 = 2x+12 \\ -12 \qquad -12 \\ \hline \end{array}$$

$$\frac{-8}{2} = \frac{2x}{2}$$

$$x = -4$$

Another way

Since both fractions have the same denominator we can add them. (5)

$$\frac{x}{x+4} + \frac{4}{x+4} = 3$$

$$\frac{x+4}{x+4} = 3$$

$1 = 3$  ← this is not true so there is no solution.