

November 16, 2015

- * I will not be at Math Jam this Friday
- * Exam # 3 - Monday November 30th
- * Final Exam - Monday December 7 @ 12:40

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#19)

$$\frac{x+y}{18xy} - \frac{6x+y}{18xy}$$

Like

$$\frac{x+y-(6x+y)}{18xy}$$

$$\frac{x+y-6x-y}{18xy} \leftarrow \text{collect like terms}$$

$$\frac{-5x}{18xy} = \boxed{-\frac{5}{18y}}$$

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#9)

LCM: $(4)(2)(5x+4)$
 $4x(5x+4)$

$$\frac{7x}{2x} - \frac{x-2}{20x+16}$$

unlike ↓ *Factor*

$$\frac{7x(2)(5x+4) - [(x-2)(4)]}{4x(5x+4)}$$

$$\frac{14x(5x+4) - [x^2-2x]}{4x(5x+4)}$$

$$\frac{70x^2 + 56x - x^2 + 2x}{4x(5x+4)}$$

$$\frac{69x^2 + 58x}{4x(5x+4)}$$

$$\frac{x(69x + 58)}{4x(5x+4)}$$

$$\boxed{\frac{69x + 58}{4(5x+4)}}$$

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LCM: Is a number that divides your numbers/variables

vs.

LCD: the least (smallest) number that your numbers/variables divide.

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#13)

LCM: $(3)(5x+1)$

$$\frac{6x}{3} + \frac{7}{15x+3}$$

Common or Like

$$\frac{6x(5x+1) + 7}{3(5x+1)}$$

$$\boxed{\frac{30x^2 + 6x + 7}{3(5x+1)}}$$

Can this be factored? *no!*

ac = 210
b = 6
+ +
? ?

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#20)

LCM: $(3)(x+1)(x+5)$

$$\frac{2x}{3x+3} - \frac{2}{x+5}$$

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

$$\frac{2x^2 + 10x - 6x - 6}{3(x+1)(x+5)}$$

$$\boxed{\frac{2x^2 + 4x - 6}{3(x+1)(x+5)}} = \boxed{\frac{(2x+6)(x-1)}{3(x+1)(x+5)}}$$

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Solving Equations that Contain Fractions

$$\frac{3}{4} + \frac{1}{x} = \frac{8}{1}$$

Steps

- Find LCD: $4x$
- Distribute LCD through entire equation

$$\frac{4x}{4x} \left(\frac{3}{4} + \frac{1}{x} = \frac{8}{1} \right)$$

$$\left[\frac{3x}{1} \right] + \left[\frac{4x}{1} \cdot \frac{1}{x} \right] = \left[\frac{4x}{1} \cdot \frac{8}{1} \right]$$

$$3x + 4 = 32x$$

cancel out fractions

$$4 = 29x$$

$$\frac{4}{29} = x$$

or

$$\frac{3}{4} + \frac{1}{\frac{4}{29}} = 8$$

$$\frac{3}{4} + \frac{29}{4} = 8$$

$$\frac{3+29}{4} = 8$$

$$\frac{32}{4} = 8$$

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$$\frac{6}{1} + \frac{2}{3x} = \frac{10}{1}, \text{ for } x$$

LC: $3x$

$$3x \left(\frac{6}{1} + \frac{2}{3x} = \frac{10}{1} \right)$$

$$\left[\frac{3x}{1} \cdot \frac{6}{1} \right] + \left[\frac{3x}{1} \cdot \frac{2}{3x} \right] = \frac{3x}{1} \cdot \frac{10}{1}$$

$$18x + 2 = 30x$$

$$\frac{2}{12} = \frac{12x}{12}$$

$$\frac{1}{6} = x$$

or

$$6 + \frac{2}{\frac{1}{3}} = 10$$

$$\frac{6}{1} + \frac{2 \cdot 3}{1} = 10$$

$$\frac{6}{1} + \frac{6}{1} = 10$$

$$6 + 4 = 10$$

$$10 = 10 \checkmark$$

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#3) $\frac{1}{3x^2} = \frac{x+3}{2x^2} - \frac{1}{6x^2}$ LC: $6x^2$

$$\frac{6x^2}{6x^2} \cdot \frac{1}{3x^2} = \frac{6x^2}{6x^2} \cdot \frac{x+3}{2x^2} - \frac{6x^2}{6x^2} \cdot \frac{1}{6x^2}$$

$$2 = 3(x+3) - 1$$

$$2 = 3x + 9 - 1$$

$$2 = 3x + 8$$

$$\frac{-6}{3} = \frac{3x}{3}$$

$$-2 = x$$

$$\frac{1}{3(-2)^2} = \frac{(-2)+3}{2(-2)^2} - \frac{1}{6(-2)^2}$$

$$\frac{1}{3(4)} = \frac{1}{8} - \frac{1}{24}$$

$$\frac{1}{12} = \frac{3-1}{24}$$

$$\frac{1}{12} = \frac{2}{24}$$

$$\frac{1}{12} = \frac{1}{12} \checkmark$$

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