

Homework

8.3 #30

$$-\frac{1}{5}a + 3 = 7$$

$$+(-3) \quad +(-3)$$


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$$-\frac{1}{5}a + 0 = 4$$

$$(-5)(-\frac{1}{5})a = 4(-5)$$

$$1 \cdot a = -20$$

$$a = -20$$

$$-\frac{1}{5}(-20) + 3 = 7$$

$$+\frac{20}{5} + 3 = 7$$

$$4 + 3 = 7$$

$$7 = 7 \quad \checkmark$$

1. Distribute, if nec.  
2. Combine like terms on each side.  
3. Add  
4. Multiply

Reciprocals

$$\frac{2}{3} \cdot \frac{3}{2} = 1$$

$$-\frac{2}{3} \cdot (-\frac{3}{2}) = 1$$

1(-20)

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8.4 #35

$$3x + \frac{1}{2} = \frac{1}{4}$$

$$+(-\frac{1}{2}) \quad +(-\frac{1}{2})$$


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$$3x + 0 = -\frac{1}{4}$$

$$\frac{1}{3} \cdot 3x = -\frac{1}{4} \cdot \frac{1}{3}$$

$$1 \cdot x = -\frac{1}{12}$$

$$x = -\frac{1}{12}$$

1. Distribute?  
2. Combine like terms?  
3. Add  
4. Multiply

4(x+3)

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

$$\frac{2}{8} + (-\frac{4}{8})$$

$$-\frac{2}{8} = -\frac{1}{4}$$

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8.4 #25

$$3a + 4 = 2(a - 5) + 15$$

$$3a + 4 = 2a - 2(5) + 15$$

$$3a + 4 = 2a - 10 + 15$$

$$3a + 4 = 2a + 5$$

$$+(-3a) \quad +(-3a)$$


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$$0 + 4 = -a + 5$$

$$+(-5) \quad +(-5)$$


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$$-1 = -a + 0$$

$$(-1)(-1) = -a(-1)$$

$$1 = a$$

1. Distribute  
2. Combine like terms on each side.  
3. Add:  
A. Variables  
B. Constants

$$3(1) + 4 = 2(1 - 5) + 15$$

$$3 + 4 = 2(-4) + 15$$

$$7 = -8 + 15$$

$$7 = 7 \quad \checkmark$$

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$$5(x - 2) + 3 = -12$$

$$5(6) - 5(2) + 3 = -12$$

$$5x - 10 + 3 = -12$$

$$5x + (-7) = -12$$

$$+7 \quad +7$$


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$$5x + 0 = -5$$

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

$$1 \cdot x = -1$$

$$x = -1$$

1. Distribute  
2. Combine like terms on each side  
3. Add  
4. Multiply

$$5(-1 - 2) + 3 = -12$$

$$5(-3) + 3 = -12$$

$$-15 + 3 = -12$$

$$-12 = -12 \quad \checkmark$$

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$$3x + \frac{1}{4} = \frac{5}{8}$$

$$+(-\frac{1}{4}) \quad +(-\frac{1}{4})$$


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$$3x + 0 = \frac{2}{8}$$

$$(\frac{1}{3})3x = \frac{2}{8}(\frac{1}{3})$$

$$1 \cdot x = \frac{2}{24}$$

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

1. Distribute?  
2. Combine like terms on each side?  
3. Add

$$\frac{5}{8} = \frac{5}{8} \quad \frac{2}{8} = \frac{2}{8}$$

$$+(-\frac{1}{4}) = -\frac{2}{8} \quad +\frac{1}{4} = \frac{2}{8}$$


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$$\frac{3}{8} \quad \frac{5}{8}$$

$$3(\frac{1}{12}) + \frac{1}{4} = \frac{5}{8}$$

$$\frac{2}{4} + \frac{1}{4} = \frac{3}{4} = \frac{6}{8}$$

$$\frac{6}{8} = \frac{6}{8} \quad \checkmark$$

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$$5x - 2.4 = 8.3$$

$$+2.4 \quad +2.4$$


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$$5x + 0 = 10.7$$

$$(\frac{1}{5})5x = \frac{10.7}{5}(\frac{1}{5})$$

$$1 \cdot x = 2.14$$

$$x = 2.14$$

1. Distribute?  
2. Combine like terms  
3. Add  
4. Multiply

Version 1:  $\frac{1}{5} \rightarrow \text{dec.}$

$$\begin{array}{r} 10.7 \\ \times 2 \\ \hline 21.4 \end{array}$$

Version 2:  $10.7 \rightarrow \text{fraction}$

$$\frac{107}{10} \times \frac{1}{5} = \frac{107}{50} = 2 \frac{7}{50}$$

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$$7a - 0.18 = 2a + 0.77$$

$$\begin{array}{r} +(-2a) \\ \hline 5a - 0.18 = 0 + .77 \end{array}$$

$$5a - 0.18 = .77$$

$$\begin{array}{r} +0.18 \\ \hline 5a + 0 = .95 \end{array}$$

$$5a = .95 \left(\frac{1}{5}\right)$$

$$a = .19$$

$$a = \frac{19}{100}$$

1. Distribute?
2. Combine like terms?
3. Add
  - A. Variables
  - B. Constants
4. Multiply
 
$$\frac{19}{100} \cdot \frac{1}{1} = \frac{19}{100}$$

$$\frac{19}{100} \cdot \frac{1}{1} = \frac{19}{100}$$

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

$$\frac{4}{4x} - \frac{2x}{4x} = \frac{-x}{4x}$$

$$\begin{array}{r} 4 - 2x = -x \\ +2x \quad +2x \\ \hline 4 + 0 = 1x \end{array}$$

4 = x

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

$$2(2x) = 4x$$

$$-1 + 2$$

$$\frac{1}{4} - \frac{1}{2} = -\frac{1}{4}$$

$$\frac{1}{4} - \frac{2}{4} = -\frac{1}{4}$$

$$\frac{1}{4} + \left(-\frac{2}{4}\right) = -\frac{1}{4}$$

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

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$$5 \cdot \frac{4}{5x} + \frac{3}{5x} = \frac{11x}{5x}$$

$$\frac{20}{5x} + \frac{3x}{5x} = \frac{11x}{5x}$$

$$20 + 3x = 11x$$

$$\begin{array}{r} +(-3x) \\ \hline 20 + 0 = 8x \end{array}$$

$$20 = 8x$$

$$\left(-\frac{1}{8}\right) 20 = -4x \left(-\frac{1}{4}\right)$$

$-5 = x$

$$\frac{4}{-5} + \frac{3(1)}{1(5)} = \frac{11}{5}$$

$$-\frac{4}{5} + \frac{3}{5} = \frac{11}{5}$$

$$\frac{11}{5} = \frac{11}{5} \checkmark$$

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