

Warm up:

$$4 \cdot \frac{5}{2} = \frac{40}{2}$$

Solve.

$$4 + \frac{2}{5}(d - 4) = 12$$

$$\frac{5}{2} \left( \frac{2}{5}(d - 4) \right) = (8) \frac{5}{2}$$

$$d - 4 = 20$$

$$d = 24$$

## HW Solutions

$$\underline{|2x-3|=8}$$

$$\begin{array}{l} 2x-3=8 \\ +3 \quad +3 \\ \hline 2x=11 \\ \hline x=\frac{11}{2} \end{array} \quad \text{or} \quad \begin{array}{l} 2x-3=-8 \\ +3 \quad +3 \\ \hline 2x=-5 \\ \hline x=-\frac{5}{2} \end{array}$$

$$\textcircled{30} \quad \left| \frac{3}{4}a - 3 \right| = 9$$

$$\frac{3}{4}a - 3 = 9 \quad \text{or} \quad \frac{3}{4}a - 3 = -9$$

$$+3 \quad +3$$

$$+3 \quad +3$$

$$\frac{4}{3} \left( \frac{3}{4}a \right) = (12) \quad \frac{4}{3} \left( \frac{3}{4}a \right) = (-6) \quad \left( \frac{4}{3} \right)$$

$$a = 16 \quad \text{or} \quad a = -8$$

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$$|-4d + 6| = 12$$

$$\begin{array}{r} -4d + 6 = 12 \\ -6 \quad -6 \\ \hline -4d = 6 \\ \underline{-4} \quad \underline{-4} \end{array}$$

$$d = -\frac{3}{2} \quad \text{or}$$

$$\begin{array}{r} -4d + 6 = -12 \\ -6 \quad -6 \\ \hline -4d = -18 \\ \underline{-4} \quad \underline{-4} \end{array}$$

$$d = \frac{9}{2}$$

$$\textcircled{20} \quad |8w + 5| = 21$$

$$8w + 5 = 21$$

$$\begin{array}{r} -5 \\ \hline \end{array}$$

$$\frac{8w}{8} = \frac{16}{8}$$

$$w = 2$$

$$8w + 5 = -21$$

$$\begin{array}{r} -5 \\ \hline \end{array}$$

$$\frac{8w}{8} = \frac{-26}{8}$$

$$w = -\frac{13}{4}$$

or

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$$\begin{array}{r} 4 - 3|q| = 10 \\ -4 \qquad \qquad -4 \\ \hline \end{array}$$

$$\begin{array}{r} -3|q| = 6 \\ \frac{-3}{-3} \quad \frac{6}{-3} \\ \hline \end{array}$$

$$|q| = -2$$

no solution

$$\textcircled{40} \quad 2|h| - 3 = 8$$
$$\quad \quad \quad + 3 \quad + 3$$

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$$\frac{2|h|}{2} = \frac{11}{2}$$

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$$|h| = \frac{11}{2}$$

$$h = \pm \frac{11}{2}$$

$$\textcircled{39} \quad |5f - 3| = 12$$

$$\begin{array}{r} 5f - 3 = 12 \\ +3 \quad +3 \\ \hline 5f = 15 \\ \frac{5}{5} \quad \frac{5}{5} \end{array}$$

$$f = 3$$

$$\begin{array}{r} 5f - 3 = -12 \\ +3 \quad +3 \\ \hline 5f = -9 \\ \frac{5}{5} \quad \frac{5}{5} \end{array}$$

$$f = -\frac{9}{5}$$



1)  $|n| - 2 = 16$

2)  $-7|x| + 5 = 2$

3)  $4 + |3x - 1| = 19$

4) Josh has four dollars more than five times as much as Vince. Together they have \$76. How much money does each person have?

5) A 1000L tank now contains 240 L of water. How long will it take to fill the tank using a pump that pumps 25L/min?

6) A company added a new oil tank that holds 350 barrels of oil more than its old oil tank. Together they hold 3650 barrels of oil. How much does each tank hold?

$$1) |n| - 2 = 16$$

$$\begin{array}{r} +2 \quad +2 \\ \hline \end{array}$$

$$|n| = 18$$

$$n = 18, -18$$

$$2) \quad -7|x| + 5 = 2$$

$$\frac{-7|x| + 5}{-5 \quad -5} = \frac{2}{-5 \quad -5}$$

$$\frac{-7|x|}{-7} = \frac{-3}{-7}$$

$$|x| = \frac{3}{7}$$

$$x = \pm \frac{3}{7}$$

$$3) \quad 4 + |3x - 1| = 19$$

$$\begin{array}{r} -4 \quad \underline{\quad\quad\quad} \quad -4 \\ \hline |3x - 1| = 15 \end{array}$$

$$3x - 1 = 15$$

or

$$3x - 1 = -15$$

$$\begin{array}{r} +1 \quad +1 \\ \hline 3x = 16 \\ \hline \frac{3x}{3} = \frac{16}{3} \end{array}$$

$$\begin{array}{r} \downarrow 1 \quad +1 \\ \hline 3x = -14 \\ \hline \frac{3x}{3} = \frac{-14}{3} \end{array}$$

$$x = \frac{16}{3}$$

or

$$x = -\frac{14}{3}$$

4) Josh has four dollars more than five times as much as Vince. Together they have \$76. How much money does each person have?

$$\underline{5v + 4} + v = 76$$

$$6v + 4 = 76$$

$$\begin{array}{r} 6v + 4 = 76 \\ -4 \quad -4 \\ \hline 6v = 72 \\ \frac{6}{6} \quad \frac{6}{6} \\ \hline v = 12 \end{array}$$

$$\begin{array}{l} \text{Vince} \rightarrow \$12 \\ \text{Josh} \rightarrow \$64 \end{array}$$

5) A 1000L tank now contains 240 L of water. How long will it take to fill the tank using a pump that pumps 25L/min?

$$\begin{array}{r} 240 + 25m = 1000 \\ -240 \qquad \qquad -240 \\ \hline \end{array}$$

$$\begin{array}{r} 25m = 760 \\ \frac{25m}{25} = \frac{760}{25} \\ \hline m = 30.4 \end{array}$$

$$\text{30.4 min}$$

6) A company added a new oil tank that holds 350 barrels of oil more than its old oil tank. Together they hold 3650 barrels of oil. How much does each tank hold?

