

Problem Set 1: Review solving Equations (including VOB)

How all algebraic work (and check odd only)

1) $\frac{g}{3} + 4 = 7$

check

$$\begin{array}{r} -4 \quad -4 \\ \hline (3) \frac{g}{3} = 3(3) \end{array}$$

$$\boxed{g = 9}$$

$$\frac{9}{3} + 4 = 7$$

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$$3 + 4 = 7$$

$$7 = 7 \checkmark$$

2) $3\left(\frac{g-1}{3}\right) = 12(3)$

$$g-1 = 36$$

$$\begin{array}{r} +1 \quad +1 \\ \hline g = 37 \end{array}$$

3) $\frac{1}{4}y - \frac{2}{3} = \frac{5}{6}$

check

$$\begin{array}{r} +\frac{2}{3} \quad +\frac{2}{3} \\ \hline \frac{1}{4}y = 1\frac{1}{2} \end{array}$$

$$\begin{array}{r} \frac{1}{4}y = 1\frac{1}{2} \\ \hline \frac{1}{4} \quad \frac{1}{4} \end{array}$$

$$\boxed{y = 6}$$

$$\frac{1}{4}y - \frac{2}{3} = \frac{5}{6}$$

$$\frac{1}{4}(6) - \frac{2}{3}$$

$$1\frac{1}{2} - \frac{2}{3}$$

$$\frac{5}{6} \checkmark$$

4) $6\left(\frac{x+7}{6}\right) = -4(6)$

$$x+7 = -24$$

$$\begin{array}{r} -7 \quad -7 \\ \hline \end{array}$$

$$\boxed{x = -31}$$

Thanks
Corey!

5) $4x + 42 = 2x + 18$

check

$$\begin{array}{r} -2x \quad -2x \\ \hline \end{array}$$

$$2x + 42 = 18$$

$$\begin{array}{r} -42 \quad -42 \\ \hline \end{array}$$

$$2x = -24$$

$$\begin{array}{r} \frac{2x}{2} \quad \frac{-24}{2} \\ \hline \end{array}$$

$$\boxed{x = -12}$$

$$4x + 42 = 2x + 18$$

$$4(-12) + 42 = 2(-12) + 18$$

$$-48 + 42 = -24 + 18$$

$$-6 = -6 \checkmark$$

6) $-30 + 12x = 7x + 50$

$$\begin{array}{r} -7x \quad -7x \\ \hline \end{array}$$

$$-30 + 5x = 50$$

$$\begin{array}{r} +30 \quad +30 \\ \hline \end{array}$$

$$5x = 80$$

$$\begin{array}{r} \frac{5x}{5} \quad \frac{80}{5} \\ \hline \end{array}$$

$$\boxed{x = 16}$$

- 7) Translate and solve: Nine less than half n is equal to one plus the product of $-\frac{1}{8}$ and n .
Find the value of n .

$$\begin{array}{r} \frac{1}{2}n - 9 = 1 + \frac{-1}{8}n \\ +\frac{1}{8}n \qquad \qquad \qquad +\frac{1}{8}n \\ \hline \frac{5}{8}n - 9 = 1 \\ \qquad \qquad \qquad +9 \quad +9 \\ \hline \frac{5}{8}n = 10 \end{array}$$

$$\begin{array}{r} \frac{5}{8}n = 10 \\ \frac{5}{8} \quad \frac{5}{8} \\ \hline n = 16 \end{array}$$

8. The Ocean Hotel charges its guests \$1 plus \$0.80 per minute for long distance calls. Across the street, the Bay Hotel charges its guests \$2 plus \$0.75 per minute for long distance calls. Find the length of a call for which the two hotels charge the same amount.

Let $m = \#$ minutes

$$\begin{array}{r} 1 + 0.80m = 2 + 0.75m \\ -0.75m \qquad \qquad \qquad -0.75m \\ \hline 1 + 0.05m = 2 \\ -1 \qquad \qquad \qquad -1 \\ \hline 0.05m = 1 \\ \frac{0.05m}{0.05} = \frac{1}{0.05} \end{array}$$

$$\boxed{m = 20}$$

9. If $2x + 7 = -9$, what is the value of $15 - 4x$?

$$\begin{array}{r} 2x + 7 = -9 \\ -7 \quad -7 \\ \hline 2x = -16 \\ \frac{2x}{2} = \frac{-16}{2} \\ \hline x = -8 \end{array}$$

$$\begin{array}{r} 15 - 4x \\ 15 - 4(-8) \\ 15 + 32 \\ \hline 47 \end{array}$$

10. If $3d - 1 = 17$, what is the value of $d - 2 = c$?

$$\begin{array}{r} 3d - 1 = 17 \\ +1 \quad +1 \\ \hline 3d = 18 \\ \frac{3d}{3} = \frac{18}{3} \\ \hline d = 6 \end{array}$$