1.3 SOLVING LINEAR EQUATIONS

Equation - MUST have an equal sign

Linear Equation - MUST have one variable and an equal sign (the graph will be a line)

EXAMPLES: Solve for the variable.

1. $x + 9 = 15$

2. $-3y = 36$

3. $12n - 3 = 4n + 21$

4. $5(m - 2) = -4(2m + 7) + m$

5. $6(3 - d) = -5(2d + 9) + 18$

6. $-(g + 2) - 2g = -2(g + 1)$

7. $\frac{7}{2}p - 1 = 2p + 5$

$-\frac{4}{2}$ $-2p$ $-2p$

$\frac{3}{2}p - 1 = 5$

$+1 \quad +1$

$\frac{2}{3} \cdot \frac{3}{2}p = 6 \cdot \frac{2}{3}$

$p = \frac{16}{1} \cdot \frac{2}{3}$

$p = 4$

8. $\frac{2}{3} \cdot \frac{10}{10}w + \frac{1 \cdot 6}{5 \cdot 6} = \frac{2w}{1} \cdot \frac{30}{30} - \frac{3 \cdot 3}{10 \cdot 3}$

$\frac{20}{30}w + \frac{6}{30} = \frac{60}{30}w - \frac{9}{30}$

$-\frac{20}{30}w \qquad -\frac{20}{30}w$

$\frac{6}{30} = \frac{40}{30}w - \frac{9}{30}$

$+\frac{9}{30} \qquad +\frac{9}{30}$

$\frac{30}{40} \cdot \frac{15}{30} = \frac{40}{30}w \cdot \frac{30}{40}$

$w = \frac{15}{30} \cdot \frac{30}{40}$

$w = \frac{3}{8}$

9. $\frac{3}{4}\left(\frac{4}{5}f - 2\right) = \frac{11}{4}$

$\frac{3}{4}\cdot\frac{4}{5}f - \frac{3}{4}\cdot\frac{2}{1} = \frac{11}{4}$

$\frac{3}{5}f - \frac{6}{4} = \frac{11}{4}$

$+\frac{6}{4} \quad +\frac{6}{4}$

$\frac{5}{3}\cdot\frac{3}{5}f = \frac{17}{4}\cdot\frac{5}{3}$

$f = \frac{17}{4}\cdot\frac{5}{3}$

$f = \frac{85}{12}$

10. $3.1(k + 2) - 1.5k = 5.2(k - 4)$

$3.1k + 6.2 - 1.5k = 5.2k - 20.8$

$1.6k + 6.2 = 5.2k - 20.8$

$-1.6k \quad -1.6k$

$6.2 = 3.6k - 20.8$

$+20.8 \quad +20.8$

$\frac{27.0}{3.6} = \frac{3.6k}{3.6}$

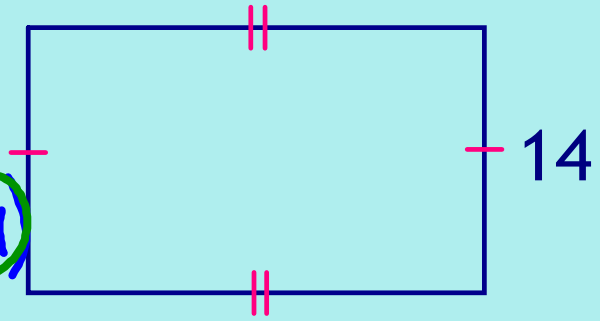
$k = 7.5$

3.1 − 1.5 = 1.6

7.5
36 | 270.0
−252
180
−180
0

11. Find the dimensions of the figure.

Area = 504



Area = $l\ w$

$504 = (10x - 24)(14)$

$504 = 140x - 336$

$+336 \quad +336$

$\frac{840}{140} = \frac{140x}{140}$

$x = 6$

$10(6) - 24$

$60 - 24$

36

12. Sally has two summer jobs. In the first job, she works 16 hours per week and earns $7.50 per hour. In the second job, she works 20 hours per week. If she earns $280 (before taxes), how much does she earn per hour at her second job?

$$5(x-4) = 5x+12$$

$$5x-20 = 5x+12$$

$-5x \qquad -5x$

$$-20 \neq 12$$

$\emptyset$

NO SOLUTION

13. Jerome earns a base yearly salary of $20,000 as a car salesman. He also earns 4% of the total value of his yearly sales. If he earned $40,920 in 2015, what was the total value of his yearly sales?

$$7x+14-3x = 4x+14$$

$$4x+14 = 4x+14$$

$-4x \qquad -4x$

$$14 = 14$$

ALL REAL NUMBERS