

## Unit 2 Notes

Ex. 1 Solve the equation:

$$\begin{array}{r} 2x - 9 = 43 \\ \underline{+9 \quad +9} \\ 2x = 52 \\ \underline{\div 2 \quad \div 2} \\ x = 26 \end{array}$$

Ex. 2 Solve.

$$\begin{array}{r} \frac{y}{5} + 7 = 11 \\ \underline{-7 \quad -7} \\ 5 \cdot \frac{y}{5} = 4 \cdot 5 \\ y = 20 \end{array}$$

Ex. 3 Solve.

$$\cancel{5} \frac{y+7}{\cancel{5}} = 11 \cdot \cancel{5}$$

$$\begin{array}{r} y+7 = 55 \\ -7 \quad -7 \\ \hline y = 48 \end{array}$$

Ex. 4 Solve.

$$\frac{2}{3}n - \cancel{5} = 11$$

$$\hline \quad \quad \quad +5 \quad +5$$

$$\begin{array}{r} \cancel{\frac{2}{3}} \cdot n = 16 \\ \hline \cancel{\frac{2}{3}} \quad \quad \frac{2}{3} \\ n = 24 \end{array}$$

$$\left. \begin{array}{l} \cancel{3} \cdot \frac{2}{3}n = 16 \cdot 3 \\ \hline \cancel{2}n = \frac{48}{2} \\ n = 24 \end{array} \right\}$$

Ex. 5 Solve.

$$3x + 2(4x - 5) = 6(2x - 7)$$

$$3x + 8x - 10 = 12x - 42$$

$$\begin{array}{r} 11x - 10 = 12x - 42 \\ -12x + 10 \quad -12x + 10 \\ \hline \end{array}$$

$$\frac{-1x}{-1} = \frac{-32}{-1} \quad \boxed{x = 32}$$

Ex. 6 Solve for x.

$$ax - p = A$$

$$\frac{ax}{a} = \frac{A + p}{a}$$

$$\boxed{x = \frac{A + p}{a}}$$

$$\boxed{x = \frac{A}{a} + \frac{p}{a}}$$

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

- Ex. 7 A number is multiplied by 5. The result is increased by 12. Then this result is divided by 2 to give a final answer of 16. What is the starting number?

$$\begin{aligned} & (x \cdot 5 + 12) \div 2 = 16 \\ & \quad \quad \quad \cdot 2 \quad \quad \cdot 2 \\ & x \cdot 5 + 12 = 32 \\ & \quad \quad \quad -12 \quad -12 \\ \hline & x \cdot 5 = 20 \quad x = 4 \\ & \quad \quad \quad \cdot 5 \end{aligned}$$

- Ex. 8 Find three consecutive odd numbers whose sum is 51.

$$\begin{aligned} & x + x + 2 + x + 4 = 51 \\ & \quad \quad \quad \underbrace{\quad \quad \quad} \quad \underbrace{\quad \quad \quad} \\ & 3x + 6 = 51 \\ & \quad \quad \quad -6 \quad -6 \\ \hline & 3x = 45 \\ & \quad \quad \quad \cdot 3 \quad \quad \cdot 3 \\ & \boxed{x = 15, 17, 19} \end{aligned}$$

Ex. 9 Solve.

$$\frac{x}{5} = \frac{3}{8}$$

$$\cancel{5}x = \frac{3}{\cancel{8}} \cdot 5$$

$$8x = \frac{15}{8}$$

$$x = 1.875$$

Ex. 10 Solve.

$$\frac{2x-3}{4} = \frac{2}{5}$$

$$\cancel{5} \frac{(2x-3)}{4} = \frac{8}{\cancel{5}}$$

$$2x-3 = 1.6$$

$$2x = 4.6$$

$$x = 2.3$$

- Ex. 11 Mr. Ebert can run 3 miles in 25 minutes. At this pace, how long will it take him to run 5 miles?

$$\frac{3 \text{ miles}}{25 \text{ min.}} = \frac{5 \text{ miles}}{x}$$

$$x = 41.\bar{6} \text{ minutes}$$

- Ex. 12 What is 22% of 60?

$$\frac{\%}{100} = \frac{IS}{OF}$$

$$\frac{22}{100} = \frac{x}{60}$$

$$13.2$$

Ex. 13

20 is 60% of what number?

A diagram with green lines. A horizontal line is drawn above the text "20 is 60% of what number?". A bracket connects "20" to the fraction  $\frac{60}{100}$  in the equation below. Another bracket connects "60%" to the fraction  $\frac{60}{100}$ . A third bracket connects "of what number?" to the fraction  $\frac{15}{OF}$  in the equation below. Arrows point from the brackets to the corresponding parts of the equation.

$$\frac{60}{100} = \frac{15}{OF}$$

$$\frac{60}{100} = \frac{20}{x}$$

$$33.\overline{3}$$