

Name: ANSWER KEY

Block: \_\_\_\_\_

Date: \_\_\_\_\_

**SOLVING & WRITING ALGEBRAIC EQUATIONS**  
**STUDY GUIDE**

**#1**

Solve for the variable.

$$\begin{array}{r} x + 34 = 452 \\ -34 \quad -34 \\ \hline x = 418 \end{array}$$

**#2**

Solve for the variable.

$$\begin{array}{r} w - 459 = 231 \\ +459 \quad +459 \\ \hline w = 690 \end{array}$$

**#3**

Solve for the variable.

$$\begin{array}{r} 3m = 93 \\ \underline{3} \quad \underline{3} \\ m = 31 \end{array}$$

**#4**

Solve for the variable.

$$\begin{array}{r} 12 \cdot \frac{m}{12} = 5 \cdot 12 \\ \hline m = 60 \end{array}$$

**#5**

Solve for the variable.

$$\begin{array}{r} -6 \cdot \frac{x}{6} = 19 \cdot 6 \\ \hline x = 114 \end{array}$$

**#6**

Solve for the variable.

$$\begin{array}{r} 2x + 25 = 117 \\ -25 \quad -25 \\ \hline 2x = 92 \\ \underline{2} \quad \underline{2} \\ x = 46 \end{array}$$

**#7**

Solve for the variable.

$$17 + 4r = 49$$

$$\begin{array}{r} -17 \\ 17 + 4r = 49 \\ -17 \end{array}$$

$$\frac{4r}{4} = \frac{32}{4}$$

$$r = 8$$

**#8**

Solve for the variable.

$$\frac{x}{22} + 15 = 19$$

$$\frac{x}{22} = 4$$

$$x = 88$$

**#9**

Write the equation and solve for the variable.

The sum of 45 and m is 62.

$$45 + m = 62$$

$$\begin{array}{r} -45 \\ 45 + m = 62 \\ -45 \end{array}$$

$$m = 17$$

**#10**

Write the equation and solve for the variable.

A number is increased by 67 is 203.

$$n + 67 = 203$$

$$\begin{array}{r} -67 \\ n + 67 = 203 \\ -67 \end{array}$$

$$n = 136$$

**#11**

Write the equation and solve for the variable.

When you take away 42 from c it equals 12.

$$c - 42 = 12$$

$$\begin{array}{r} +42 \\ c - 42 = 12 \\ +42 \end{array}$$

$$c = 54$$

**#12**

Write the equation and solve for the variable.

t divided by a 4 equals 51.

$$\frac{t}{4} = 51$$

$$t = 204$$

# #13

Write the equation and solve for the variable.

The product of 6 and r equals 516.

$$\begin{array}{r} 6r = 516 \\ \cancel{6} \quad \quad \cancel{6} \\ \hline r = 86 \end{array}$$

# #14

Write the equation and solve for the variable.

Eleni is x years old. In thirteen years she will be forty-six years old. How old is Eleni?

$$\begin{array}{r} x + 13 = 46 \\ -13 \quad -13 \\ \hline \end{array}$$

$$x = 33$$

33 years old

# #15

Write the equation and solve for the variable.

Leila used 32 pieces of paper and Thomas used m pieces of paper. Together, they used 94 pieces of paper. How much paper did Thomas use?

$$\begin{array}{r} 32 + m = 94 \\ -32 \quad \quad -32 \\ \hline m = 62 \end{array}$$

62 pieces

# #16

Write the equation and solve for the variable.

Each apple costs \$1.50. The price of a apples is \$15.00. How many apples did you buy?

$$\begin{array}{r} 1.50a = 15.00 \\ \cancel{1.50} \quad \quad \cancel{1.50} \\ \hline \end{array}$$

$$a = 10$$

10 apples

# #17

Write the equation and solve for the variable.

As a salesperson, you are paid \$50 per week plus \$3.50 per sale. This week you want your pay to be \$117, how many sales do you need to make?

$$\begin{array}{r} 3.50x + 50 = 117 \\ -50 \quad -50 \\ \hline \end{array}$$

$$\begin{array}{r} 3.50x = 67 \\ \frac{3.50}{3.50} \quad \frac{67}{3.50} \\ \hline \end{array}$$

$$x = 19.14$$

20 sales

# #18

Write the equation and solve for the variable.

The student council raised \$516 during a charity dance. If they charged \$5 per ticket and received \$36 in other donations, how many tickets did they sell to the dance?

$$\begin{array}{r} 5t + 36 = 516 \\ -36 \quad -36 \\ \hline \end{array}$$

$$\begin{array}{r} 5t = 480 \\ \frac{5}{5} \quad \frac{480}{5} \\ \hline \end{array}$$

$$t = 96$$

96 tickets

