

Math Challenge #17

First Name: _____ Last Name: _____ Grade: _____

Teacher: _____ Parent's email: _____

Algebraic Sense

In this Math Challenge, we are continuing to sharpen our skills in algebraic reasoning. The following math problems have similar concepts with those found in the last math challenge (MC #10). Try to solve as many problems as possible, and don't give up easily.

Kinder & First Grade: solve at least 3 problems.
 Second & Third Grade: solve at least 6 problems.
 Fourth Grade and above: solve at least 12 problems.

	<i>Problems</i>	<i>Answer</i>
1.	+ = 8	= ?
2.	+ = 6 + = 15	= ?
3.	+ + = 12 + = 13	= ?
4.	+ + = 27 + = 20	= ?
5.	+ + = \$19 + + + = \$32	= ?
6.	+ = \$6.00 + = \$10.50 + = \$14.00	= ? = ?
7.	+ + = \$34.20 + + = \$15.30	= ?
8.	+ + + = \$30.20 + = \$10.20	= ? = ?
9.	+ + + = \$33.20 + + + = \$40.14 + = \$15.02	= ? = ?

10.

$$\begin{aligned}
 & \text{3 red shirts} + \text{2 blue pants} = \$138.75 \\
 & \text{1 blue pants} + \text{1 red shirt} + \text{2 blue shoes} = \$69.75 \\
 & \text{3 blue shoes} = \$22.50
 \end{aligned}$$

$$\begin{aligned}
 & \text{1 red shirt} = ? \\
 & \text{1 blue shoe} = ? \\
 & \text{1 blue pants} = ?
 \end{aligned}$$

11.

$$\begin{aligned}
 & \text{1 pair of patterned shorts} = \text{2 red socks} + \text{2 red socks} \\
 & \text{3 pairs of patterned shorts} = \$55.50
 \end{aligned}$$

$$\text{1 red sock} + \text{1 pair of patterned shorts} = ?$$

12.

$$\begin{aligned}
 & \text{1 blue lollipop} + \text{1 purple lollipop} + \text{1 green lollipop} = \$5.00 \\
 & \text{1 purple lollipop} + \text{1 green lollipop} + \text{1 blue lollipop} + \text{1 green lollipop} + \text{1 purple cupcake} + \text{1 purple cupcake} = \$25.00 \\
 & \text{1 blue lollipop} = \$0.95
 \end{aligned}$$

$$\text{1 purple cupcake} = ?$$

13.

$$\begin{aligned}
 & \text{1 pair of patterned shorts} = \text{2 red socks} + \text{2 red socks} \\
 & \text{2 pairs of patterned shorts} + \text{1 pair of patterned shorts} = \$35.60 \\
 & \text{2 red socks} + \text{2 red socks} = \text{1 red hat}
 \end{aligned}$$

$$\text{1 red hat} + \text{1 red sock} = ?$$

14.

$$\begin{aligned}
 & \text{7 yellow cars} + \text{1 sailboat} = \$300,000 \\
 & \text{1 yellow car} + \text{2 red cars} = \$1,000,000 \\
 & \$380,000 = \text{2 sailboats} + \text{1 red car}
 \end{aligned}$$

$$\text{1 red car} = ?$$

15.

$$\begin{aligned}
 & \$988,000 + \text{5 motorcycles} = \text{1 red car} + \text{1 red truck} + \text{1 house} \\
 & \text{1 red car} + \text{1 red truck} = \text{3 motorcycles} \\
 & \text{1 house} + \text{1 red car} + \text{1 red truck} = \$1,104,000
 \end{aligned}$$

$$\text{1 house} = ?$$

16. Instead of finding the value of each picture, find the value of each letter to solve the problem.

$$N + Y + T = \frac{11}{12}$$

$$M + T + M = 1$$

$$1\frac{2}{3} = N + N + Y + Y$$

What is the value of $3M$?

17.

Find the value of G .

$$G + H + H + Y = 4.9$$

$$Y + Y + Y = G + G$$

$$Y + G + Y + G = H + H + H$$

18.

Find the value of $3N$.

$$2N + Y = 2A$$

$$Y + B + 2N + Y + B + 2N = 1 + B + B$$

$$Y + Y + Y + Y = 3A$$