

Simplify each expression using the correct order of operations:

$$1.) \quad \frac{18 + 7^2 - 7}{9 - 20 \div 4 + 16}$$

$$\frac{18 + 49 - 7}{9 - 5 + 16} = \frac{60}{20} = 3$$

$$2.) \text{ Solve: } 10m - 3(2m-9) = 9(m-1) + 1$$

$$10m - 6m + 27 = 9m - 9 + 1$$

$$4m + 27 = 9m - 8$$

$$\begin{array}{r} -4m \\ \hline 27 = 5m - 8 \\ +8 \quad +8 \\ \hline 35 = 5m \end{array}$$

$$\frac{35}{5} = \frac{5m}{5} \quad 7 = m$$

3.) It costs Raquel \$5 in tolls to drive to work and back each day, plus she uses 3 gallons of gas. It costs her a total of \$15.50 to drive to work and back each day. How much per gallon is Raquel paying for her gas? How do you know?

$$X = \text{cost per gallon} \quad 3X + 5 = 15.50$$

$$\begin{array}{r} -5 \quad -5.00 \\ \hline 3X = 10.50 \\ \hline 3 \quad 3 \\ \hline X = \$3.50 \end{array}$$

\$3.50

type 3: Finding Consecutive Numbers

- What does consecutive mean? back to back, in order
- Give examples of the following:

consecutive numbers	2, 3, 4, 5, ... / $n, n+1, n+2, n+3, \dots$
consecutive <u>even</u> numbers	2, 4, 6, 8, ... / $n, n+2, n+4, \dots$
consecutive <u>odd</u> numbers	1, 3, 5, 7, ... / $n, n+2, n+4, \dots$

10. The sum of two consecutive numbers is 123. Find the numbers.

$$n = 1^{\text{st}} \#$$

$$n+1 = 2^{\text{nd}} \#$$

$$n + n+1 = 123$$

$$2n+1 = 123$$

$$\begin{array}{r} -1 \quad -1 \\ \hline 2n = 122 \end{array}$$

$$\begin{array}{l} n = 61 \\ n+1 = 62 \end{array}$$

11. The sum of two consecutive numbers is 85, find the numbers.

$$n = 1^{\text{st}} \#$$

$$n+1 = 2^{\text{nd}} \#$$

$$n + n+1 = 85$$

$$2n+1 = 85$$

$$\begin{array}{r} -1 \quad -1 \\ \hline 2n = 84 \end{array}$$

$$\frac{2n}{2} = \frac{84}{2}$$

$$n = 42$$

$$\begin{array}{l} n = 42 \\ n+1 = 43 \end{array}$$

12. Find two consecutive even numbers whose sum is 54.

$$n = 1^{\text{st}} \#$$
$$n+2 = 2^{\text{nd}} \#$$

$$n + n + 2 = 54$$
$$2n + 2 = 54$$
$$\begin{array}{r} -2 \quad -2 \\ \hline 2n = 52 \end{array}$$

$$n = 26$$
$$n + 2 = 28$$

13. The sum of two consecutive odd numbers is 128. Find the numbers.

$$n, n+2 =$$

$$n + n + 2 = 128$$
$$2n + 2 = 128$$
$$\begin{array}{r} -2 \quad -2 \\ \hline 2n = 126 \end{array}$$

$$n = 63$$
$$n + 2 = 65$$

$$\frac{2n = 126}{2} \quad \frac{2n = 126}{2}$$

14. The sum of three consecutive even numbers is 138. Find the numbers.

$$n, n+2, n+4$$

$$n+n+2+n+4=138$$

$$3n+6=138$$

$$\frac{3n=132}{3} \quad \frac{132}{3}$$

$$n=44$$

$$n=44$$

$$n+2=46$$

$$n+4=48$$

15. The sum of three consecutive odd numbers is 57. What are the three numbers?

$$n, n+2, n+4$$

$$n+n+2+n+4=57$$

$$3n+6=57$$

$$\frac{3n=51}{3} \quad \frac{51}{3}$$

$$n=17$$

$$n=17$$

$$n+2=19$$

$$n+4=21$$

MR. WILKS' CHALLENGE!



In cross-country, the team score is determined by the place each individual runner finishes. (For example 1st place is one point, 16th place is 16 points, etc.) In their latest meet, Mr. Wilks' team scored 55 points. If there were five runners on the team and each runner finished one after another, what places did they each come in?

Test Average Problems

1.) Matthew's goal is to average a 90 on his tests in Algebra. His grades on the first four test were 85%, 93%, 88%, and 94%. Write and solve an equation to find what score Matthew must receive on the fifth test to receive an average of

$\frac{90}{X = \text{SCORE ON TEST \#5}}$

$$\frac{85 + 93 + 88 + 94 + X}{5} = 90$$
$$\frac{360 + X}{5} = 90$$
$$360 + X = 450$$
$$-360 \quad -360$$
$$X = 90$$

2.) Your test scores are 75, 93, 90, 82, and 85. What is the lowest score you can earn on the next test to achieve an average of 86?

$= 86$

$X = \text{SCORE ON TEST \#6}$

$$\frac{75 + 93 + 90 + 82 + 85 + X}{6} = 86$$
$$\frac{425 + X}{6} = 86$$
$$425 + X = 516$$
$$-425 \quad -425$$
$$X = 91$$

add
multiply
subtract

3.) Suppose Kirk has taken three tests and made 88, 90, and 84. Kirk wants to know what he needs to make on the fourth test to have an overall average of 90 so he can make an A in the class.

$$\begin{array}{r} 88 + 90 + 84 + X = 90 \\ \hline 4 \\ 262 + X = 90 \\ \hline 4 \end{array}$$
$$\begin{array}{r} 262 + X = 360 \\ -262 \quad -262 \\ \hline X = 98 \end{array}$$

4.) Jim has four test scores of 86, 81, 80, and 75. He wants to make a B in the class, which means he needs his average to be an 80. What grade does Jim need to make on the fifth test to make a B in the class?