

Name: _____

Date: _____

Notes

Algebra Section 1.2

Pages 8-13



Goal: "I will be able to evaluate expressions using Order of Operations."

Order of Operations

- Simplify what is inside the parentheses.
- Raise to Power
- Multiplication or Division, whatever comes first left to right
- Addition or Subtraction, whatever comes first left to right

Example 1: $12 - (7 - 4)^2 + 5 \cdot 2$
P $12 - 3^2 + 5 \cdot 2$
E $12 - 9 + 5 \cdot 2$
MD $12 - 9 + 10$
AS $3 + 10$
AS 13

Example 2: $\frac{3(12-5)}{1+3^2}$ Clear the numerator and denominator before dividing

$$\frac{3 \cdot 7}{1+3^2}$$
$$\frac{3 \cdot 7}{1+9}$$
$$\frac{21}{1+9}$$
$$\frac{21}{10} = 2 \frac{1}{10}$$

Try These:

(a) $5(3 + 4) - 6/3$
 $5 \cdot 7 - 6/3$
 $35 - 6/3$
 $35 - 2$
 33

(b) $4 + (6+1)^2$
 $4 + 7^2$
 $4 + 49$
 53

$$\begin{aligned}
 \text{(c)} \quad & 5 + 2(4) + 10/2 - 3^2 \\
 & 5 + 2(4) + 10/2 - 9 \\
 & 5 + 8 + 10/2 - 9 \\
 & 5 + 8 + 5 - 9 \\
 & 13 + 5 - 9 \\
 & 18 - 9 \\
 & 9
 \end{aligned}$$

$$\begin{aligned}
 \text{(d)} \quad & 30 - (5 + 1) + 3^2 - (2 + 2) \\
 & 30 - 6 + 9 - (2 + 2) \\
 & 30 - 6 + 9 - 4 \\
 & 24 + 9 - 4 \\
 & 33 - 4 \\
 & 29
 \end{aligned}$$

$$\begin{aligned}
 \text{(e)} \quad & \frac{5 + 3^2}{10 - 8} \\
 & \frac{5 + 9}{10 - 8} \\
 & \frac{14}{10 - 8} \\
 & \frac{14}{2} \\
 & 7
 \end{aligned}$$

$$\begin{aligned}
 \text{(f)} \quad & \frac{2(3+4)}{(9-8)^2} \\
 & \frac{2 \cdot 7}{(9-8)^2} \\
 & \frac{14}{(9-8)^2} \\
 & \frac{14}{1^2} \\
 & \frac{14}{1} \\
 & 14
 \end{aligned}$$

Evaluate each expressions for $n=4$.

$$\begin{aligned}
 \text{(a)} \quad & 3n - 5 \\
 & 3 \cdot 4 - 5 \\
 & 12 - 5 \\
 & 7
 \end{aligned}$$

$$\begin{aligned}
 \text{(b)} \quad & (2n - 3) + 3 \\
 & (2 \cdot 4 - 3) + 3 \\
 & (8 - 3) + 3 \\
 & 5 + 3 \\
 & 8
 \end{aligned}$$

$$\begin{aligned}
 \text{(c)} \quad & (2n + 3)^2 - 7 \\
 & (2 \cdot 4 + 3)^2 - 7 \\
 & (8 + 3)^2 - 7 \\
 & 11^2 - 7 \\
 & 121 - 7 \\
 & 114
 \end{aligned}$$

$$\begin{aligned}
 \text{(d)} \quad & \frac{(10-2n)^3}{5n-3^2} \\
 & \frac{(10-2 \cdot 4)^3}{5 \cdot 4 - 3^2} \\
 & \frac{(10-8)^3}{5 \cdot 4 - 3^2} \\
 & \frac{2^3}{5 \cdot 4 - 3^2} \\
 & \frac{8}{5 \cdot 4 - 3^2} \\
 & \frac{8}{5 \cdot 4 - 9} \\
 & \frac{8}{20 - 9} \\
 & \frac{8}{11}
 \end{aligned}$$