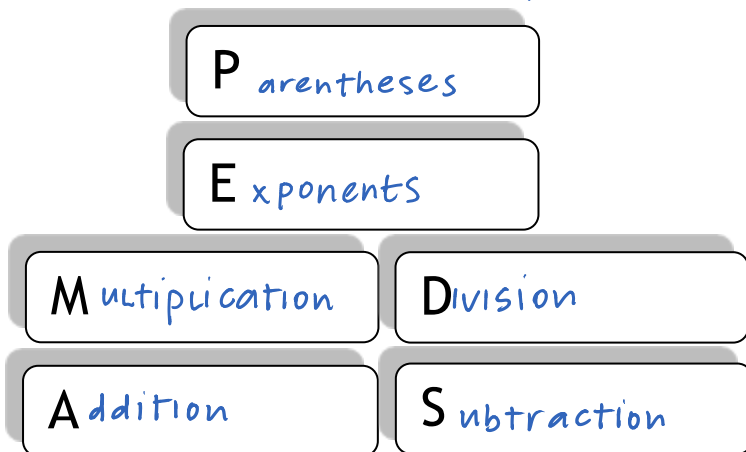


## Order of Operations



Use the order of operations to evaluate expressions.

Let's define an **EXPRESSION**: a mathematical phrase containing #'s, variables & operations



1.  $13 - 8 + 3$

$$\textcircled{8}$$

2.  $8 - 6 \div 2$

$$\begin{array}{l} 8 - 3 \\ \textcircled{5} \end{array}$$

3.  $10 - 3 \div 3 \times 2$

$$\begin{array}{l} 10 - 1 \times 2 \\ 10 - 2 \\ \textcircled{8} \end{array}$$

4.  $\frac{1}{6}(6 - 18) + 2^2$

$$\begin{array}{l} \frac{1}{6}(-12) + 4 \\ -2 + 4 \\ \textcircled{2} \end{array}$$

5.  $48 \div 4^2 + (5 - 3)^2$

$$\begin{array}{l} 48 \div 16 + (2)^2 \\ 48 \div 16 + 4 \\ 3 + 4 \\ \textcircled{7} \end{array}$$

6.  $2^4 \cdot 4 - 8 \div 2$

$$\begin{array}{l} 16 \cdot 4 - 8 \div 2 \\ 64 - 4 \\ \textcircled{60} \end{array}$$

7.  $[3(8 - 2^2)] \div 6$

$$\begin{array}{l} [3(8 - 4)] \div 6 \\ [3(4)] \div 6 \\ 12 \div 6 \\ \textcircled{2} \end{array}$$

8.  $2[(9 + 3)^2 \div 6]$

$$\begin{array}{l} 2[12^2 \div 6] \\ 2[144 \div 6] \\ 2[24] \\ \textcircled{48} \end{array}$$

9.  $9 \times 4^2 \div 2$

$$\begin{array}{l} 9 \times 16 \div 2 \\ \textcircled{72} \end{array}$$

10.  $[(15 - 10) + 3^2] \div 2$

$$\begin{array}{l} [5 + 9] \div 2 \\ 14 \div 2 \\ \textcircled{7} \end{array}$$

11.  $\frac{2 + 5 \cdot 2}{16 \div 4 - 2}$

$$\frac{2 + 10}{4 - 2} = \frac{12}{2} = \textcircled{6}$$

12.  $27 \div 3^2 \times 2 - 3$

$$\begin{array}{l} 27 \div 9 \times 2 - 3 \\ 3 \times 2 - 3 \\ 6 - 3 \\ \textcircled{3} \end{array}$$

**Word Problems:** For the following word problems, write an expression that represents the situation and then use the Order of Operations to evaluate the expression.

1. A certain small factory employs 98 workers. Of these, 10 receive a wage of \$150 per day and the rest receive \$85.50 per day. To the management, a week is equal to 6 working days. How much does the factory pay out for each week?

**Expression:**  $6[(10 \times 150) + (88 \times 85.50)]$

**Work:**  $6[1500 + 7524] = 6[9024] = \$54,144$

If the same factory has supplies expenses of \$1,135.78 a DAY in addition to the wages above and makes \$60,128.72 in a week, what is the factory's total profit or loss in one week?

**Expression:**  $60,128.72 - 54,144 - (1,135.78 \times 6)$

**Work:**  $60,128.72 - 54,144 - 6814.68$   
 $-\$829.96 \text{ (Loss)}$

2. Lillia scores 15 points fewer than Bob, who scores 35 points. Carol scores half as many points as Lillia. How many points does Carol score?

**Expression:**  $(35 - 15) \div 2$  NOT!!  $35 - 15 \div 2$

**Work:**  $20 \div 2$   
 $10$

Are you up for a challenge??

$$\begin{aligned} & \frac{9(3 \div 3) + 4(5 \bullet 9) \div 3}{6^2 \div [5^2 - (4^2 - 3)]} \\ &= \frac{9(1) + 4(45) \div 3}{36 \div [25 - (16 - 3)]} \\ &= \frac{9 + 180 \div 3}{36 \div [25 - 13]} \\ &= \frac{9 + 60}{36 \div 12} \\ &= \frac{69}{3} \\ &= 23 \end{aligned}$$

You can  
Do it!!!

