

**Algebra 1 10/19**

**Warm Up IXL**

**Algebra 1**

**A.4**

# 1-2 Order of Operations

I can evaluate numerical/algebraic expression by using the order of operations

Evaluate find the solutions/answer

## Order of Operations

the rules that tell you which operation to perform 1st in a math problem PEMDAS/GEMDAS

### The Rules:

1. Calculate within the innermost grouping symbols,  $()$ ,  $[\ ]$ ,  $\{ \}$ ,  $| \ |$ , and above or below fraction bars.
2. Simplify all exponential expressions.
3. Perform all multiplication and division, working from left to right.
4. Perform all addition and subtraction, working from left to right.

Grouping Symbols you may come across:

$( )$      $[ ]$      $\{ \}$      $| \ |$      $\frac{\#}{\#}$   
 $\sqrt{\quad}$      $\sqrt[3]{\quad}$

I can evaluate numerical/algebraic expression by using the order of operations

Ex. 1 Evaluate

A.  $3^5$

$3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

243

B.  $2^4$

16

C.  $4^5$

1024

D.  $7^3$

343

I can evaluate numerical/algebraic expression by using the order of operations

Ex. 2 Evaluate

A.  $16 - 8 \div 2^2 + 14$

$$16 - 8 \div 4 + 14$$

$$16 - 2 + 14$$

$$14 + 14 = 28$$

B.  $20 - 7 + 8^2 - 7(11)$

$$20 - 7 + 64 - 77$$

$$13 + 64 - 77$$

$$77 - 77 = 0$$

I can evaluate numerical/algebraic expression by using the order of operations

Ex. 3 Evaluate

A.  $6[32 - (2 + 3)^2]$

$$6[32 - 5^2]$$

$$6[32 - 25] = 6[7] = 42$$

B.  $\frac{(4+5)^2}{3(7-4)} = \frac{9^2}{3(3)} = \frac{81}{9} = 9$

I can evaluate numerical/algebraic expression by using the order of operations

Ex. 4 Evaluate  $3x^2 + (2y + z^3)$  if  $x=4$ ,  $y=5$ ,  $z=3$

$$3 \cdot 4^2 + (2 \cdot 5 + 3^3)$$

$$3 \cdot 16 + (10 + 27)$$

$$48 + 37$$

$$= 85$$

I can evaluate numerical/algebraic expression by using the order of operations

Ex. 5 According to CDF, an average of 539.2 fires each year are started by burning debris, while campfires are responsible for an average of 129.1 each year.

A. Write an algebraic expression that represents the number of fires, on average, in  $d$  years of debris burning and  $c$  years of campfires

$$539.2d + 129.1c$$

B. How many fires would there be in 5 years

$$\begin{aligned}d &= 5 & c &= 5 \\539.2 \cdot 5 &+ 129.1 \cdot 5 \\&\approx 3341.5\end{aligned}$$

I can evaluate numerical/algebraic expression by using the order of operations

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Hmwk IXL Algebra 1 B.2