

# Concept 9: Order of Operations

**DUE DATE: Friday, Dec 13<sup>th</sup>**

*(initial score in the gradebook, on the LIST if not completed)*

**DEADLINE: Friday, Dec 20<sup>th</sup>**

*(no more work accepted on this Concept)*

*Pre-Quiz Score = \_\_\_\_/5*

**Level 4: Score 5**

**Level 3: Score 3-4**

**Level 2: Score 0-2**

## Level 2

### 1. Watch the video (Order of Operations Level 2)

Complete the Notes & Basic Practice

Check the Key and Correct Mistakes

### 2. Complete 2 of the following tasks

IXL Practice	Worksheets	Gaming
B1 (Alg 1)  Score = _____ (at least 90)	Order of Operations Level 2	Complete through stage 2 of PEDMAS BLASTER on Manga High (ask Mr. Sieling for login info)  Score =

### 3. Take the Schoology Quiz (Level 2: Order of Operations)

Score of 4 or higher move to level 3

Score of 3 or less, complete 1 of the following tasks

Level 2

Quiz Score:

BuzzMath	Fix Mistakes	Creating
Complete an assigned task in BuzzMath (must earn gold star)	Write up the questions you got wrong and hand it in. All work and steps must be shown.	Create a short iMovie or Google Presentation showing how to solve 2 order of operation problems

Mr. Sieling's Signature \_\_\_\_\_

Quiz Scores						
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### Level 3

1. Watch the video (Order of Operations Level 3)

Complete the Notes & Basic Practice, Check the Key and Correct Mistakes

2. Complete 2 of the following tasks

IXL Practice	Worksheets	Gaming
B2 (Alg 1)  Score = _____ (at least 90)	Order of Operations Level 3	Complete through stage 2 of PEDMAS BLASTER on Manga High (ask Mr. Sieling for login info)  Score =

3. Take the Schoology Quiz (Level 3: Order of Operations)

Score of 4 or higher move to level 4

Score of 3 or less, complete 1 of the following tasks

Level 3  
Quiz Score:

BuzzMath	Fix Mistakes	Creating
Complete an assigned task in BuzzMath (must earn gold star)	Write up the questions you got wrong and hand it in. All work and steps must be shown.	Create a short iMovie or Google Presentation showing how to solve 2 order of operation problems

Mr. Sieling's Signature: \_\_\_\_\_

### Level 4

1. Watch the video (Order of Operations Level 4)

Complete the Notes & Basic Practice, Check the Key and Correct Mistakes

2. Complete 2 of the following tasks

IXL Practice	Worksheets	Gaming
B3 (Alg 1)  Score = _____ (at least 90)	Order of Operations Level 4	Complete through stage 2 of PEDMAS BLASTER on Manga High (ask Mr. Sieling for login info)  Score =

3. Take the Schoology Quiz (Level 4: Order of Operations)

Score of 4 or higher, Congratulations Math Master!

Score of 3 or less, complete 1 of the following tasks

Level 4  
Quiz Score:

BuzzMath	Fix Mistakes	Creating
Complete an assigned task in BuzzMath (must earn gold star)	Write up the questions you got wrong and hand it in. All work and steps must be shown.	Create a short iMovie or Google Presentation showing how to solve 2 order of operation problems

Mr. Sieling's Signature: \_\_\_\_\_

# Notes Level 2:

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**Goals:**

Arithmetic with positive and negative numbers  
Evaluate expressions using the order of operations

Concept # \_\_\_\_\_

**Notes:**

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Big Ideas

Examples/Details

Arithmetic Review

Adding

Subtraction

Mult/Div

GEMS

Definition

Examples

## Level 2 Practice:

### Arithmetic Practice

**Find each sum.**

1)  $(-5) + 7$

2)  $(-4) + 7$

3)  $(-15) + 8$

4)  $(-3) + 14$

**Find each difference.**

5)  $(-9) - (-11)$

6)  $(-6) - 12$

7)  $(-3) - 11$

8)  $(-12) - 8$

**Find each product.**

9)  $5 \times -4$

10)  $-5 \times -10$

**Find each quotient.**

11)  $-64 \div 8$

12)  $-54 \div -6$

### Order of Operations Practice

**Evaluate each expression.**

13)  $(5 \times 2) \div 5$

14)  $2 \div (6 - 4)$

15)  $5 + 1 + 1$

16)  $(16 - 1) \div 5$

17)  $10 \div (5 - 3)$

18)  $10 \div 2 + 4$

19)  $5 - 5 + 2 + 6$

20)  $(2 + 2) \times 6 + 1$

21)  $(4 - 15 \div 5) \times 3$

22)  $2 + 4 \times 5 - 4$

# Worksheet Level 2:

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## Goals:

Arithmetic with positive and negative numbers  
Evaluate expressions using the order of operations

Concept # \_\_\_\_\_

## Practice #1

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Find each value without using a calculator.

- a.**  $+12 + -12$       **b.**  $+12 - +12$       **c.**  $-12 - +12$   
**d.**  $-12 - -12$       **e.**  $-12 + -12$       **f.**  $-12 + +12$

## Practice #2

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Find each value.

- a.**  $+50 + -35$       **b.**  $+50 - -20$       **c.**  $-19 - +11$   
**d.**  $-30 - +50$       **e.**  $-35 + -15$       **f.**  $+12 + -18$

## Practice #3

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Without doing any calculations, decide which will give the greater result. Explain your reasoning.

- a.**  $+5,280 + -768$       OR       $+5,280 - -768$   
**b.**  $+1,760 - -880$       OR       $+1,760 - +880$   
**c.**  $+1,500 + +3,141$       OR       $+1,500 - -3,141$

## Practice #4

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Find each value.

- a.**  $7 \cdot 2$       **b.**  $-7 \times (-2)$       **c.**  $7 \times (-2)$   
**d.**  $-7 \times 2$       **e.**  $8 \cdot 2.5$       **f.**  $-9 \times (-4)$

## Practice #5

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Find a value for  $n$  to make each sentence true.

- a.**  $24 \div 2 = n$       **b.**  $-24 \div (-2) = n$   
**c.**  $24 \div n = -12$       **d.**  $n \div 2 = -12$   
**e.**  $5 \div 2.5 = n$       **f.**  $-12 \div n = 3$

**Practice #6**

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Show your work below for each of the expressions.

1)  $6 \cdot 2 \cdot 3 \div 3$

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

3)  $(18 \cdot 2) \div 6$

4)  $(16 - 1) \div (4 + 1)$

5)  $15 \div (3 - 2 + 4)$

6)  $(2 - 1 + 6) \cdot 5$

7)  $(3 - (2 + 10) \div 6) \times 3$

8)  $(3 \div (4 - 1) + 3) \times 3$

9)  $3(6 - 6) + 6 - 5$

10)  $(2 + 5) \times 6 \times 5 \div 5$

11)  $5 - (4 \times 2 - 1 - 1) \div 6$

12)  $4 \times 4 + 4 - (6 - 9 \div 3)$

# Notes Level 3:

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**Goals:**

Evaluate expressions with the order of operations (including negative #s)

Concept # \_\_\_\_\_

**Notes:**

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Big Ideas

Examples/Details

GEMS

Definition

Example 1

Example 2

Level 3 Practice:

SHOW ALL WORK

1)  $-5 \times -4 - 2$

2)  $-5 - 2 \times 2$

3)  $2 - (-5 + 6)$

4)  $-15 \div 5 \times -4$

5)  $-5 - 6 \div (1 - 2)$

6)  $-3 \div 3 \times 5 \times -5$

7)  $-4 - (2 + 6^2)$

8)  $2^2 - (-2 - 6)$

9)  $-1 - (-6 \div -6)^2 \times -2$

10)  $(-5)^2 + (-9 - 3) \times 9$

11)  $4 - 4^3 + 6 \times -3$

12)  $-9 \div -9 - 10 - 4^2$



# Worksheet Level 3:

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**Goals:**

Evaluate expressions with the order of operations  
(including negative #s and exponents)

Concept # \_\_\_\_\_

**Practice #1**

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Find the values of each pair of expressions.

- a.**  $-12 + (-4 + 9)$                        $[-12 + (-4)] + 9$   
**b.**  $(14 - 20) - 2^3$                        $14 - (20 - 2^3)$   
**c.**  $[14 + (-20)] + -8$                        $14 + [-20 + (-8)]$   
**d.**  $-1 - [-1 + (-1)]$                        $[-1 - (-1)] + (-1)$   
**e.** Which cases lead to expressions with different results? Explain.

**Practice #2**

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Find the value of each expression.

- a.**  $(5 - 3) \div (-2) \times (-1)$                       **b.**  $2 + (-3) \times 4 - (-5)$   
**c.**  $4 \times 2 \times (-3) + (-10) \div 5$                       **d.**  $-3 \times [2 + (-10)] - 2^2$   
**e.**  $(4 - 20) \div 2^2 - 5 \times (-2)$                       **f.**  $10 - [50 \div (-2 \times 25) - 7] \times 2^2$

**SHOW WORK FOR EACH OF THE 6 EXPRESSIONS BELOW**

**Practice #3**

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Find the answers to the following expressions.

**a.**  $5 \times 8 \div 2 \div 2$

**b.**  $3 + -5 \times 4 - 2$

**c.**  $5 \times 2 \times -3 + -12 \div 6$

**d.**  $-4 \times (3 + -10) - 3^2$

**e.**  $(8 - 20) \div 2^2 - 5 \times -3$

**f.**  $20 - (60 \div (-2 \times 30) - 8) \times 2^2$

**g.**  $12 - 8 + 4 - 3$

**h.**  $4^2 + \frac{-10}{2} + 13$

**Practice #4**

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Add parenthesis to the following expression to get the smallest possible answer.

$$1 + 3 \cdot 2 + 8 + (-4)$$

Add parenthesis to the following expression to get the largest possible answer. (must be bigger than 30)

$$1 + 3 \cdot 2 + 8 + (-4)$$

**Practice #5**

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Add parenthesis to each expression to make the statement true.

Show your work to prove the answer is correct.

$$6 + 6 \div 6 \times 6 + 6 = 24$$

$$6 + 6 \div 6 \times 6 - 6 = 0$$

# Notes Level 4:

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**Goals:**

Evaluate expressions using the order of operations.

Evaluate algebraic expressions using substitution and the order of operations.

Concept # \_\_\_\_\_

**Notes:**

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Big Ideas

Examples/Details

GEMS

Definition

Example 1

Example 2

**Level 4 Practice****Evaluate each expression.**

1)  $(6 - 2) \div (2 \times -1)$

2)  $5 - 3 + 2 - 3$

3)  $(-5 - -4) \times 5 - 3$

4)  $-9 \div (5 + 3 - 5)$

5)  $3 + |6 - -5|$

6)  $1 - -1 + -1 - -2$

7)  $6 - (-12 \div -2)^2$

8)  $|-5|^2 - 6$

**Evaluate each using the values given.**

9)  $9(x - y^2 - (-9 + y))$ ; use  $x = -9$ , and  $y = -3$

10)  $\frac{a}{4} - (|b - 6| - 8)$ ; use  $a = -4$ , and  $b = 4$

11)  $p\left(4 + |q| + \frac{q}{2}\right)$ ; use  $p = 9$ , and  $q = -10$

12)  $(10 - x)(y + x) - 5 + y$ ; use  $x = -7$ , and  $y = 2$

# Worksheet Level 4:

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## Goals:

Evaluate expressions using the order of operations.

Evaluate algebraic expressions using substitution and the order of operations.

Concept # \_\_\_\_\_

## Practice #1

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- A.** In a game, the goal is to write a number sentence that gives the greatest possible result using all the numbers on four cards. Jeremy draws the following four cards.



1. Joshua writes  $5 - (-6) \times 4 + (-3) = 41$ . Sarah says the result should be 26. Who is correct and why?
2. Wendy starts by writing  $-3 - (-6) + 5^4 =$ . What is her result?
3. Insert parentheses into  $-3 - (-6) + 5^4$  to give a greater result than in part (2).

## Practice #2

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Use parentheses, if needed, to make the greatest and least possible values.

1.  $7 - 2 + 3^2$

2.  $46 + 2.8 \times 7 - 2$

**Practice #3****Evaluate each using the values given.**

1)  $z - 3 + y(x - y)$ ; use  $x = 1$ ,  $y = -6$ , and  $z = 3$

2)  $x \times (y^2)^3 - y$ ; use  $x = -1$ , and  $y = 2$

3)  $h + j - 60 + h$ ; use  $h = -8$ , and  $j = 1$

4)  $|5b| - a \div 4$ ; use  $a = -4$ , and  $b = -5$

5)  $n^2 + m(m + 8)$ ; use  $m = -2$ , and  $n = 1$

6)  $|p| + p - (r - p)$ ; use  $p = -10$ , and  $r = -4$

7)  $x\left(y + \left|\frac{y}{2}\right|\right)$ ; use  $x = 4$ , and  $y = -10$

8)  $\frac{p + p - |q|}{6}$ ; use  $p = -7$ , and  $q = -10$

9)  $b + b + a - c + b$ ; use  $a = 6$ ,  $b = 5$ , and  $c = 4$

10)  $p + p - \left(\frac{m}{6} + m\right)$ ; use  $m = -6$ , and  $p = -7$