**Order of Operations Class Work**

✒ **You will be able to...** apply the correct order of operations to simplify expressions.

≋ **GEMDAS!**

Grouping Symbols ( ) [ ] √ | fraction bar

Exponents

M/D multiplication ; division in the order they appear

A/S addition ; subtraction from left to right

★ **Example 1:** Simplify the expression $(3-2) + 4 * 1 - 3$

GEMDAS
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$= 1 + 4 * 1 - 3$
$= 1 + 4 - 3$
$= 5 - 3$
$= 2$

≋ **Practice:** Simplify each expression.

1. $6 - 10 \div 5$

$2^3 222$

$= 6 - 2$
$= \boxed{4}$

2. $3 * 2 - 2^3 \div 2$

$= 3 * 2 - 8 \div 2$
$= 6 - 8 \div 2$
$= 6 - 4$
$= \boxed{2}$ GEMDAS

3. $(5+3)^2 + 2 * -1$

$= 8^2 + 2 * -1$
$= 64 + 2 * -1$
$= 64 + -2$
$= \boxed{62}$

4. $7^2 - 2 * (4+1) * 3$

$7^2 - 2 \cdot (4+1) 3$
$49 - 2 \cdot 5 \cdot 3$
$49 - 30 =$
$\boxed{19}$

5. $\dfrac{10 - 3^2}{8 - 3 * 2}$

$\dfrac{10 - 9}{8 - 6} = \dfrac{1}{2}$

6. $\dfrac{20 + 2}{-22 + 100 \div 10}$

$\dfrac{20 - 16 + 2}{-22 + 10} = \dfrac{6}{-12}$

$\dfrac{6}{-12} = \boxed{-\dfrac{1}{2}}$

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HW

1. $-4(2+7)^2 - 1$

2. $5 + -40 \div 10 * 9$

3. $\dfrac{8 * 2^2}{1 - 5 + 3}$

4. $-9(2+1)^2$

5. $\dfrac{40 - 12 \div 3 * 4}{8 - 3^2 \cdot 2}$

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1

★ **Example 2:** Simplify the expression: $\dfrac{(r+t)^2}{8+2r*3}$ for r = -1 and t = 5

✎ **Practice:** Simplify each expression.

1. 4 − 2d ÷ c   for c = 2 and d = 10

2. f²g + 2f − 1 for f = -2 and g = 8

3. $\dfrac{(h-k)^2}{3+3k*4}$ f   for h = 8 and k = 2

4. $\dfrac{w^2 - v*w}{12-3+5}$   for w = -5 and v = 3

★ **Real World Problem Solving:**

5. A neighborhood turned a vacant lot into a skate park, shaped like a trapezoid.  The bases of the lot are 100 feet and 200 feet, and the height of the trapezoid that represents the lot is 130 feet long. The formula for the area of a trapezoid is $A = h\left(\dfrac{b_1 + b_2}{2}\right)$.  What is the area of the skate park?

6. The equation C = p + rp can be used to find the total cost of any item with price p and tax rate r in a given store.  Assume you buy a pair of sneakers for $88 and the tax rate is 7%.  How much will you pay? (Remember to write the percent as a decimal! ☺ 7% = _____)

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❋ **Simplify each expression:**

1. 5 + 4 * 2 − 1

2. $\dfrac{4+5}{-9+6*2}$

3. $2x^2 - 3 * x + 9$ for x = 5