

Working with Exponents and Integers

1) $(-1)(-1)(-1)(-1) = +1 = (-1)^4$

2) $(-5)(-5)(-5)(-5)(-5)(-5)(-5) = -78,125 = (-5)^7$

3) $(-2)(-2)(-2) = -8 = (-2)^3$

4) $(-10)(-10)(-10)(-10)(-10)(-10) = +1,000,000 = (-10)^6$

Even Numbered Exponent?

positive

Odd Numbered Exponent?

negative

Order of Operations	PEMDAS	GEMS
Parantheses	Please	Grouping Symbols
Exponents	Excuse	Exponents
Multiplication	My	Multiplication & Division
Division	Dear	
Addition	Aunt	Subtraction & Addition
Subtraction	Sally	

left to right

Using Order of Operations with Integers

Examples:

1) $8 - 3 \cdot 2 - 33 \div 11$
 $8 - 6 - 33 \div 11$
 $8 - 6 - 3$
 $2 + (-3) = -1$

2) $(-3)^3 - 6(-2) - 2$
 $-27 - 6(-2) - 2$
 $-27 + 12 + (-2)$
 $-15 - 2$
 -17

3) $-8(2 - 5) \div (-4)$
 $-8(-3) \div (-4)$
 $24 \div (-4)$
 -6

4) $4 \cdot 5 - 10 - 2(1 - 2) + 5$
 $4 \cdot 5 - 10 - (2(-1)) + 5$
 $4 \cdot 5 - 10 - (-2) + 5$
 $20 + (-10) + 2 + 5$
 $10 + 2 + 5$
 17

$6^2 - 3^2$
 $= 36 - 9$
 $= 27$

6) $\frac{xy}{z} \div w$ when $w = -1, x = 6, y = 3,$ and $z = -2$
 $\frac{6(3)}{-2} \div (-1) = \frac{18}{-2} \div (-1) = -9 \div -1 = 9$

7) $(-2)^3 - (-5)$
 $-8 + (+5)$
 -3

8) $(-3)^2 \cdot (5 - 7)^2 - (-9) \div 3$
 $9 \cdot (-2)^2 - (-9) \div 3$
 $9 \cdot 4 - (-9) \div 3$
 $36 - (-3)$
 39

9) $(y + z)^2 + (w - x)^2$ when $w = -1, x = 6, y = 3,$ and $z = -2$
 $(3 + -2)^2 + (-1 + -6)^2$
 $= 1^2 + (-7)^2$
 $= 1 + 49$
 $= 50$

10) $4w + 2y + \frac{x}{z}$ when $w = -1, x = 6, y = 3,$ and $z = -2$
 $4(-1) + 2(3) + \frac{6}{-2}$
 $-4 + 6 + (-3) = -1$

Assignment: Astronaut Worksheet

Modified: Astronaut Worksheet Set 1 and Set 2