Wednesday

Aim: How do we use the order of operations with integers? **Date** 9/13/17

do now

Circle the mistake and solve the problem correctly.

Problem 1

$24 \div -6 \div 3$

$24 \div -2$

-12

$24 \div -6 \div 3$

$-4 \div 3$

$\frac{-4}{3}$ $\boxed{-1\frac{1}{3}}$

Problem 2

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

$-14 \times (-2)$

28

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

$-20 + (-12)$

$\boxed{-32}$

Parenthesis
Exponents
Multiply **D**ivide } as they appear Left to Right
Add **S**ubtract

Evaluating Numerical Expressions

a) $2 + (-6) \times 3$

$2 + -18$

$\boxed{-16}$

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

$-12 + (-5)$

$\boxed{-17}$

c) $-3 \times 8 \div (-5 - 3)$

$-3 \times 8 \div (-8)$

$-24 \div -8$

$\boxed{3}$

d) $-26 \div 2 - 3(4)$

$-13 \quad -12$

$\boxed{-25}$

e) $12 - (3 - 5)^2 + 36 \div 9$

$12 - (-2)^2 + 36 \div 9$

$12 - 4 + 36 \div 9$

$12 - 4 + 4$

$8 + 4$

$\boxed{12}$

Evaluating Algebraic Expressions

Evaluate the following expressions when $x = 5$, $y = -6$, and $z = -4$

a) $xy - z$

$(5)(-6) - (-4)$

$-30 + 4$

$\boxed{-26}$

b) $xy - xyz$

$(5)(-6) - (5)(-6)(-4)$

$-30 - 120$

$\boxed{-150}$

c) $x + y - z$

$(5) + (-6) - (-4)$

$-1 - (-4)$

$\boxed{3}$

d) $xy \div |z + 1|$

$(5)(-6) \div |(-4) + 1|$

$-30 \div |-3|$

$-30 \div 3$

$\boxed{-10}$

e) $\left(\frac{x-z}{3}\right)^2$

$\left(\frac{5) - (-4)}{3}\right)^2$

$\left(\frac{9}{3}\right)^2 \quad 3^2 = 9$

Procedure: When evaluating algebraic expressions, always replace each variable with ( ) then substitute each value into the ( ).

Recap of Integers

Let $x = -4$. Evaluate each expression.

1) x -4
-4

2) $|x|$ $|-4|$
4

3) $-x$ $-(-4)$
4

4) x^2 $(-4)^2$
$-4 \cdot -4$
$\boxed{16}$

5) If $|x| = 5$, what are the possible values of x?

5 and -5 could be the possible values because they are both 5 away from zero.

6) If ⊕ represents +1 and ● represents -1, together they sum to 0.

Evaluate each expression when a = 8 and b = -2.

7) $a + (-14)$
$(8) + (-14)$
$|-6|$

8) $-a - b$
$-(8) - (-2)$
$-8 + 2$ $|-6|$

9) $-7b$
$-7(-2)$
$\boxed{14}$

10) $a \div (-b)$
$(8) \div -(-2)$
$|4|$

The TAKE AWAY

The order of operations / Integer rules apply to all positive and negative real numbers.