

Mrs. Peden

Date: _____

Name: _____

11.3 – Multiplying Integers

Recall: Difference of integers (Subtract)

Subtraction of integers was really simply add the opposite integer!
 Example: $5 - (-3)$
 $5 + 3$

Working from the above principle, let's see how it applies to multiplication

Expression	Pattern	Signs involved	Expression	Pattern	Signs involved
$4 \times 3 = 12$	$\begin{matrix} > -4 \\ > -4 \end{matrix}$](+)(+)	$-4 \times 3 = -12$	$\begin{matrix} > +4 \\ > +4 \end{matrix}$](-)(+)
$4 \times 2 = 8$	$\begin{matrix} > -4 \\ > -4 \end{matrix}$		$-4 \times 2 = -8$	$\begin{matrix} > +4 \\ > +4 \end{matrix}$	
$4 \times 1 = 4$	$\begin{matrix} > -4 \\ > -4 \end{matrix}$		$-4 \times 1 = -4$	$\begin{matrix} > +4 \\ > +4 \end{matrix}$	
$4 \times 0 = 0$			$-4 \times 0 = 0$		
$4 \times (-1) = -4$](-)(-)](+)(-)	$-4 \times (-1) = 4$	$\begin{matrix} > -4 \\ > -4 \end{matrix}$](-)(-)
$4 \times (-2) = -8$			$-4 \times (-2) = 8$		
$4 \times (-3) = -12$			$-4 \times (-3) = 12$		

Can we now explain the patterns we observed and state a rule that applies when multiplying integers???

In words:

**This applies to multiplication and division always!*

With mathematical signs:

Signs involved	Result
(+)(+)	+
(+)(-)	-
(-)(-)	+

"bad things" happen to "bad people" makes you feel good

Let's try some:

First step: multiply the numbers

Second step: figure out the sign

a) $5 \times (-2) = -10$ b) $-7 \times 5 = -35$ c) $-6 \times (-2) = 12$ d) $4 \times (-12) = -48$

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What if there is more than just two numbers being multiplied??

Use the same steps as above – 1st find the answer (by multiplying) then figure out the sign!

a) $5 \times 4 \times (-2) =$
 $= 20(-2)$
 $= -40$

b) $4 \times (-6) \times (-2) = 48$
 $= (-24)(-2)$
 $=$

c) $5 \times (-2) \times (-6) \times (-3) =$
 $= -10 \times 18$
 $= -180$

Application of Integer Multiplication:

1) Five students from Mrs. Peden's class owed her \$2 after the last dress down day. What was the total amount owed?

owe $\rightarrow -2$
 #students 5
 $\therefore (-2) \times 5 = -10$

(*) Even # of neg. terms, answer is +ve

2) Use multiplication strategies to evaluate the following:

a) $(-6) + (-6) + (-6) + (-6) + (-6) + (-6) =$
 $= (-6) \times 6$
 $= -36$

(*) ODD # of neg terms, answer is -ve

b) $6(-2)(-3) = 36$

Recall X multiply if no sign between #'s

$(-6)^6 = (-6) \times (-6) \times (-6) \times (-6) \times (-6) \times (-6)$

NOTE: MULTIPLICATION = PRODUCT

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