Activities/ Resources for Outcome #2

Adding Integers Discovery Worksheet

1) On your calculator, do the following addition problems.

4 + 9	30 + 40	6 + 7
14 + 54	12 + 38	1 + 9

Are the **numbers** you added (the addends) all positive or all negative or some of both?

Are the **answers** to your addition problems (sums) positive or negative or some of both?

2) On your calculator, do the following addition problems.

-10 + -9	-4 + -2	-5 + -1
-23 + -45	-50 + -50	-17 + -71

Are the **numbers** you added (the addends) all positive or all negative or some of both?

Are the **answers** to your addition problems (sums) positive or negative or some of both?

3) On your calculator, do the following addition problems.

-2 + 8	-7 + 3	-6 + 14
5 + -15	1 + -4	-3 + 4
-22 + 3	44 + -23	14 + -12

Are the **numbers** you added (the addends) all positive or all negative or some of both?

Are the **answers** to your addition problems (sums) all positive or negative or some of both?

4) Can you figure out the rules for adding two integers together? Look back at the previous page. Do you see a pattern? Try to fill the following blanks.

A) When adding two positive integers, the sum is

_____

B) When adding two negative integers, the sum is

_____

C) When adding a positive and a negative integer, the sum is

_____

Subtracting Integers Discovery Worksheet

1) Find the following *differences* with a calculator.

$10 - 6 =$

$15 - 9 =$

$100 - 34 =$

$249 - 150 =$

$25 - 15 =$

$37 - 17 =$

2) Now find the following *sums* with a calculator.

$10 + -6 =$

$15 + -9 =$

$100 + -34 =$

$249 + -150 =$

$25 + -15 =$

$37 + -17 =$

3) Compare your answers in part A to the answers in part B. Were they the same or different?

4) Based on your answer to part C, how is subtraction related to addition?

5) If you were asked to write the subtraction problem $"39-10"$ as an addition problem which produces the same answer, what would it be? DON'T WRITE THE ANSWER TO THE PROBLEM!

6) Do you think that $95-32$ is the same as $95+-32$? Check it with your calculator.

7) Rewrite $41-19$ as an equivalent addition problem. Work both problems on the calculator. This means the answers to the subtraction problem and the equivalent addition problem should be the same.

8) Using the same reasoning as above, rewrite the following subtraction problems as addition problems. Work both sets of problems with the calculator.

Subtraction	Difference	Related Addition	Sum
$17-4=$			
$-17-4=$			
$17-(-4)=$			
$-17-(-4)=$			

9) Did you get the same answers for the subtraction problems as you did for your addition problems? If 'no', try again!

Multiplication and Division of Integers Discovery Worksheet

1) Rewrite the following multiplication problems as repeated addition and determine the sum. The first one has been done for you. Finish the rest. DON'T JUST DO THE MULTIPLICATION. WRITE EACH MULTIPLICATION OUT AS A REPEATED ADDITION – JUST LIKE THE EXAMPLE!

$5 \cdot 4 = 4 + 4 + 4 + 4 + 4 = 20$

$5 \cdot 3 =$

$5 \cdot 2 =$

$5 \cdot 1 =$

$5 \cdot 0 =$

$5 \cdot -1 =$

$5 \cdot -2 =$

$5 \cdot -3 =$

$5 \cdot -4 =$

$5 \cdot -5 =$

$5 \cdot -6 =$

2) What can you say about multiplying a positive and a negative number? Is the product always positive? Is the product always negative? Does the product depend on the larger number?

3) Use a calculator or your newly acquired multiplication of integers rule or repeated addition to get the following products. YOU DO NOT NEED TO WRITE THESE OUT AS REPEATED MULTIPLICATION. JUST DO THEM ON THE CALCULATOR OR USE THE RULE YOU JUST FIGURED OUT FROM 2) ON THE FIRST PAGE!

$-5 \cdot 4 =$

$-5 \cdot 3 =$

$-5 \cdot 2 =$

$-5 \cdot 1 =$

$-5 \cdot 0 =$

$-5 \cdot -1 =$

$-5 \cdot -2 =$

$-5 \cdot -3 =$

$-5 \cdot -4 =$

$-5 \cdot -5 =$

$-5 \cdot -6 =$

4) What can you say about multiplying two negative numbers? Is the product always positive? Is the product always negative? Does the product depend on the larger number?

5) Now complete the following table:

Positive	Times	Positive	Equals	
Positive	Times	Negative	Equals	
Negative	Times	Negative	Equals	
Negative	Times	Positive	Equals	

6) FYI – The rules for division are the same as the rules for multiplication. Complete the following table:

Positive	Divided by	Positive	Equals	
Positive	Divided by	Negative	Equals	
Negative	Divided by	Negative	Equals	
Negative	Divided by	Positive	Equals	