

Name: _____ Date: _____ Period: _____

**Integer Operations:
Addition and Subtraction**

Vocabulary:

Integers: _____

Remember, if no sign is in front of the number, the number is _____ .

Notes:

When **adding** two integers with the **same** sign: _____

Examples:

$$52 + 31$$

$$- 23 + (- 45)$$

$$- 54 + (- 78)$$

When **adding** two integers with **different** signs: _____

Examples:

$$52 + (- 31)$$

$$- 23 + 45$$

$$- 54 + (78)$$

$$2 + (- 51)$$

$$3 + (- 25)$$

$$- 64 + 19$$

When **subtracting** two integers: _____

What exactly is “Keep, Change, Change?”

Keep: _____

Change: _____

Change: _____

Examples:

$$42 - (-21)$$

$$-52 - 14$$

$$5 - (19)$$

$$-4 - (-11)$$

$$13 - (-25)$$

$$-16 - 21$$

$$17 - (6)$$

$$-22 - (-5)$$

$$-7 - (-8)$$

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**Integer Operations:
Addition and Subtraction**

Rules for Adding Integers

Rule 1: If the signs are the **same** then add the numbers. Keep the same sign.

Rule 2: If the signs are **different** then subtract the smaller number from the larger number. Keep the sign of the bigger number.

**Rules for Subtracting Integers:
The “Keep, Change, Change” Method**

The “Keep, Change, Change” method is only used when you are **subtracting** two numbers and parenthesis surround the **second** number.

When implementing “Keep, Change, Change,” **keep** the first term, **change** the subtraction to addition, and **change** the sign of the second term.

Solve. Show all of your work.

$$(-87) - (-31) =$$

$$84 - (-37) =$$

$$(-43) - 71 =$$

$$(-25) - 88 =$$

$$(-56) + 91 =$$

$$(-39) + 47 =$$

$$(-3) + (-71) =$$

$$52 + 23 =$$

$$(-61) - 26 =$$

Solve. Show all of your work.

$9 + (-6) =$

$8 - (-2) =$

$(-2) + 8 =$

$10 + (-5) =$

$8 - 5 =$

$(-3) + 7 =$

$3 - (-6) =$

$(-2) - (-7) =$

$(-7) + 10 =$

$5 - 7 =$

$(-4) + (-5) =$

$8 - 4 =$

$(-9) + 2 =$

$(-6) + (-2) =$

$(-3) + 1 =$

$2 - (-5) =$

$3 + (-1) =$

$5 + (-5) =$

$(-7) - 4 =$

$6 + (-10) =$

$(-9) + (-1) =$

Challenge:

Solve the following. Be sure to use your rules!

$-9 + 2 + (-5) + 6 - (-11)$

$-3 - 2 + (-5) + 8 + (-9)$

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Integer Operations: Addition and Subtraction

Rules for Adding Integers

Rule 1: If the signs are the **same** then add the numbers. Keep the same sign.

Example: $23 + 15$

Note: Both numbers are **positive** and therefore have the same sign. Since the signs are the same, we add the two numbers.

Add: $23 + 15 = 38$

Note: However, we must keep the same sign. Since both addends are positive, your answer is also positive.

Answer: 38

Example: $-45 + (-23)$

Note: Both numbers are **negative** and therefore have the same sign. Since the signs are the same, we add the two numbers.

Add: $45 + 23 = 68$

Note: Keep the same sign. Since both numbers are negative, your answer is also negative.

Answer: - 68

Rule 2: If the signs are **different** then subtract the smaller number from the bigger number. Keep the sign of the bigger number.

Example: $-13 + 25$

Note: Both numbers have different signs. Subtract the smaller number from the bigger number.

Subtract: $25 - 13 = 12$

Note: The answer has the same sign as the larger number. In this case, the larger number is positive. Therefore, the answer will also be positive.

Answer: 12

Example: $48 + (-79)$

Note: Both numbers have different signs. Subtract the smaller number from the bigger number.

Subtract: $79 - 48 = 31$

Note: The answer has the same sign as the larger number. In this case, the larger number is negative. Therefore, the answer will also be negative.

Answer: - 31

Rules for Subtracting Integers
The “Keep, Change, Change” Method

When subtracting two integers, use “Keep, Change, Change” to **keep** the first term, **change** the subtraction to addition, and **change** the sign of the second term.

Example: $- 2 - (+ 6)$

Keep the $- 2$.

Change the $-$ to a $+$.

Change the $+$ to a $-$.

Rewrite: $- 2 + (- 6)$

Note that you are now adding two negatives. Follow **Rule 1** to solve.

Example: $- 4 - (- 8)$

Keep the $- 4$.

Change the first $-$ to a $+$.

Change the second $-$ to a $+$.

Rewrite: $- 4 + (+ 8)$

Note that you are now adding two numbers with different signs. Follow **Rule 2** to solve.

Find each sum and difference. If subtracting, first rewrite the problem using the “Keep, Change, Change” method, then solve.

$- 16 + 8$

$- 9 - 19$

$- 4 - (- 16)$

$3 + (- 9)$

$- 19 - 5$

$11 - (- 8)$

$- 17 + 7$

$14 + (- 11)$

Name: _____ Date: _____ Period: _____

**Integer Operations:
Multiplication and Division**

Notes:

When **multiplying** integers: _____

When **dividing** integers: _____

How do I know if my answer should be positive or negative?

If I **multiply** two integers with the **same** sign, the answer is _____ .

If I **multiply** two integers with **different** signs, the answer is _____ .

If I **divide** two integers with the **same** sign, the answer is _____ .

If I **divide** two integers with **different** signs, the answer is _____ .

Examples:

positive \div positive = _____ positive \times negative = _____

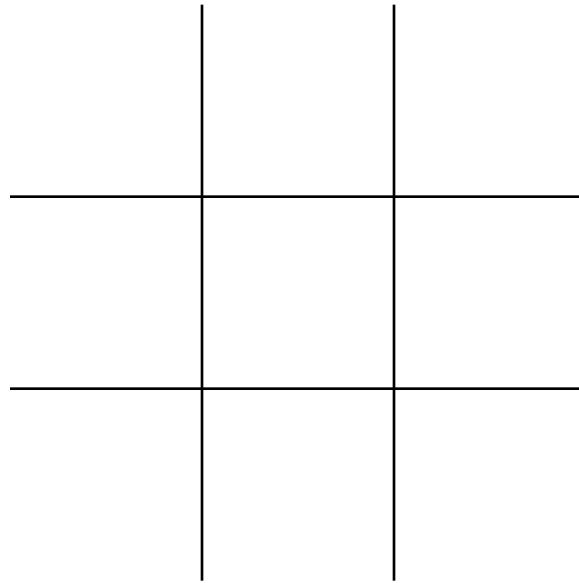
negative \times positive = _____ negative \div positive = _____

positive \times positive = _____ positive \div negative = _____

negative \div negative = _____ negative \times negative = _____

Notes:

If you have difficulty remembering whether your answer should be negative or positive, you can use the following chart:

**How do I use the chart?**

Examples:

$- 6 \cdot 8$

$- 12 \div (- 4)$

$- 10 \times (- 2)$

$49 \div (- 7)$

$63 \div (- 9)$

$9 \times (- 3)$


$- 4 \div 4$

$3 \cdot (- 8)$

Name: _____ Date: _____ Period: _____

Integer Operations

Addition	Subtraction
<p>Rule 1: If the signs are the same then add the numbers. Keep the same sign.</p> <p>Rule 2: If the signs are different then subtract bigger number and the smaller number. Keep the sign of the bigger number.</p>	<p>Rule 1: “Keep, Change, Change,” then follow the rules for adding integers.</p>



Multiplication and Division									
<p>Step 1: Multiply/divide, first ignoring the signs.</p> <p>Step 2: Insert the appropriate sign.</p> <p>How do I know what sign to use when multiplying and dividing?</p> <p>If the signs of the numbers you are multiplying/dividing are the same, then your answer is positive.</p> <p>If the signs of the numbers you are multiplying/dividing are the different, then your answer is negative.</p> <p>You can also use the chart below:</p> <table border="1"><tbody><tr><td>P</td><td>N</td><td>N</td></tr><tr><td>N</td><td>P</td><td>N</td></tr><tr><td>N</td><td>N</td><td>P</td></tr></tbody></table>	P	N	N	N	P	N	N	N	P
P	N	N							
N	P	N							
N	N	P							

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Integer Operations

Rules for Adding Integers

Rule 1: If the signs are the **same** then **add** the numbers. Keep the same sign.

Rule 2: If the signs are **different** then **subtract** smaller number from the largest number. Keep the sign of the bigger number.

Rule for Subtracting Integers

Rule 1: “Keep, Change, Change,” then follow the rules for adding integers.

Steps for Multiplying and Dividing Integers

Step 1: Multiply/divide ignoring the signs.

Step 2: Insert the appropriate sign.

How do I know what sign to use when multiplying and dividing?

If the signs of the numbers you are multiplying/dividing are the **same**, then your answer is **positive**.

If the signs of the numbers you are multiplying/dividing are the **different**, then your answer is **negative**.

Or, you can use the chart below:

P	N	N
N	P	N
N	N	P

Remember, your “positives” go on a diagonal.

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**Integer Operations:
Mixed Operations: Warm-Up**

$- 5 + 4$

$8 \times (- 7)$

$- 12 + (- 16)$

$56 \div (- 7)$

$- 72 \div - 8$

$- 18 - (- 13)$

$7 \times (- 7)$

$- 4 - (- 10)$

[Warm-Up]

Name: _____ Date: _____ Period: _____

**Integer Operations:
Mixed Operations: Exit Ticket**

$- 5 + 14$

$6 \times (- 8)$

$- 22 + (- 18)$

$49 \div (- 7)$

$- 48 \div - 8$

$- 3 - (- 13)$

$11 \times (- 7)$

$- 34 - (- 20)$

[Worksheets]

Castano

Name: _____ Date: _____ Period: _____

**Integer Operations:
Multiplication and Division**

$$(-3) \div 3 =$$

$$(-44) \div (-11) =$$

$$(-21) \div 3 =$$

$$(-48) \div (-4) =$$

$$30 \div (-3) =$$

$$(-11) \div (-1) =$$

$$8 \div (-8) =$$

$$5 \div (-1) =$$

$$30 \div 3 =$$

$$(-36) \div 12 =$$

$$(-72) \div (-8) =$$

$$(-40) \div (-4) =$$

$$20 \div 2 =$$

$$10 \div 1 =$$

$$7 \div (-1) =$$

$$72 \div (-12) =$$

$$80 \div (-8) =$$

$$2 \times (-2) =$$

$$0 \times 9 =$$

$$4 \times (-10) =$$

$$9 \times 6 =$$

$$(-6) \times (-9) =$$

$$(-12) \times 0 =$$

$$7 \times (-4) =$$

$$0 \times 2 =$$

$$(-4) \times (-1) =$$

$$4 \times 0 =$$

$$7 \times (-7) =$$

$$(-5) \times 3 =$$

$$3 \times (-4) =$$

$$3 \times (-6) =$$

$$0 \times (-5) =$$

$$6 \times (-2) =$$

$$(-3) \times 9 =$$

$$(-9) \times 3 =$$

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

$$\begin{aligned}(-6) \div 1 &= \\ 45 \div (-9) &= \\ (-15) \div 5 &= \\ (-4) \div 4 &= \\ (-42) \div 6 &= \\ (-72) \div (-6) &= \\ 40 \div (-10) &= \\ 80 \div 8 &= \\ (-110) \div 11 &= \\ 8 \div 2 &= \\ 6 \div 3 &= \\ 24 \div (-12) &= \\ 108 \div (-12) &= \\ 15 \div (-3) &= \\ (-56) \div 7 &= \\ 32 \div 8 &= \\ (-20) \div 10 &= \end{aligned}$$

$$\begin{aligned}(-5) \times 6 &= \\ 4 \times (-1) &= \\ 9 \times 3 &= \\ 8 \times (-1) &= \\ 11 \times (-11) &= \\ 0 \times 12 &= \\ (-7) \times 11 &= \\ (-6) \times (-8) &= \\ 10 \times 12 &= \\ (-9) \times (-5) &= \\ (-2) \times 4 &= \\ (-11) \times (-5) &= \\ (-3) \times (-12) &= \\ 8 \times (-3) &= \\ (-11) \times (-2) &= \\ (-10) \times 0 &= \\ (-6) \times (-3) &= \\ 11 \times 9 &= \\ 11 \times (-4) &= \end{aligned}$$