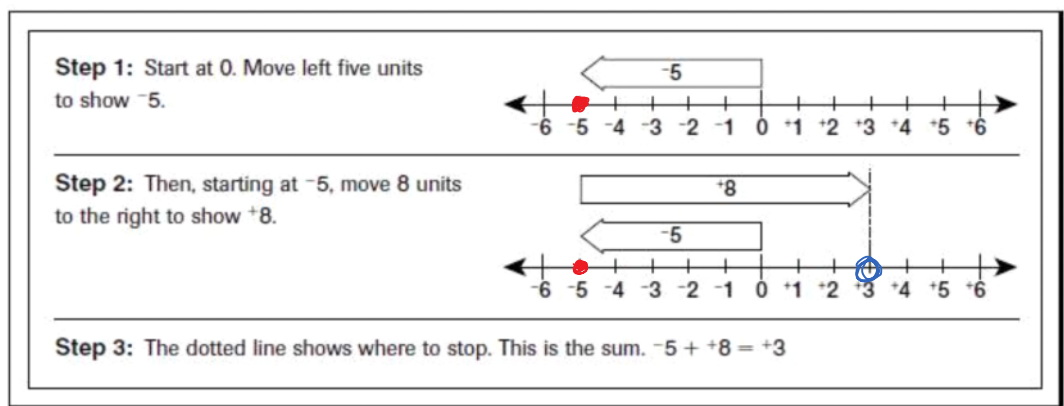# Operations With Integers

June-15-16
8:37 AM

Mathematics 9
Operations with Integers

A. Addition of Integers

- One way to model or show addition of integers is to use a number line.
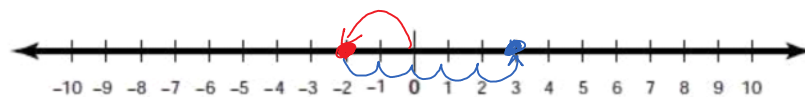- For example, to add:

$$(-5)+8$$

Step 1: Start at 0. Move left five units to show $^-5$.

Step 2: Then, starting at $^-5$, move 8 units to the right to show $^+8$.

Step 3: The dotted line shows where to stop. This is the sum. $^-5 + {}^+8 = {}^+3$

Be Careful!

- To ADD a **positive integer** start at the first number and move to the _right._ on the number line.
- To ADD a **negative integer** start at the first number and move to the _left._ on the number line.
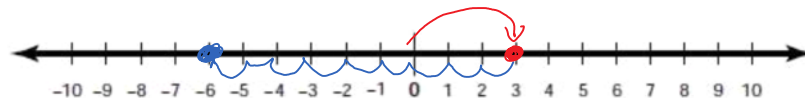
Directions: Use a number line to solve the following problems.
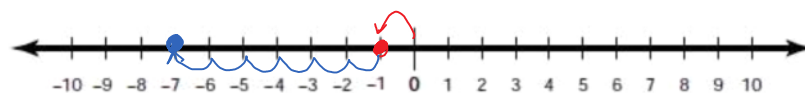
1. $(-2)+5$ $= \boxed{3}$

2. $3+(-9)$ $= \boxed{-6}$

3. $(-1)+(-6)$ $= \boxed{-7}$

B. <u>Subtraction of Integers</u>

- One way to model or show subtraction of integers is to change the equation and make it into an addition question. In this way you only need to remember the rules for adding integers.
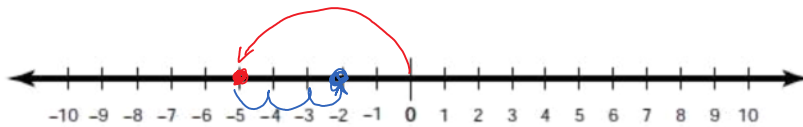
- For example, to subtract

$$(-5) - (-3)$$

We can change the question from subtraction to addition by "adding the opposite". In other words we change the subtraction sign to addition and we change the sign of the next number.

$$(-5) + 3$$

Once the question has been rewritten then we just have to follow the rules for addition of integers to solve the question.

$$(-5) + 3 = \boxed{-2}$$

Directions: Rewrite the question and then use the number line to solve the following problems.
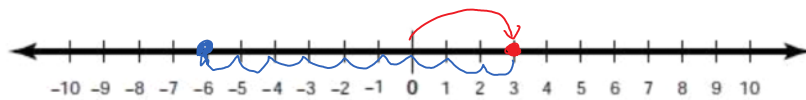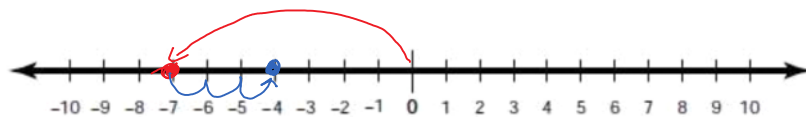
1. $(-2) - 5$

$(-2) + (-5)$

$= \boxed{-7}$

2. $3 - 9$

$3 + (-9)$

$= \boxed{-6}$

3. $(-7) - (-3)$

$(-7) + 3$

$= \boxed{-4}$

C. Multiplication & Division of Integers

Rules for Multiplying & Dividing Integers:

When multiplying/dividing integers that have the same sign (two positives or two negatives), the answer is always positive.

$3 \times 4 =$ $\boxed{12}$ $\qquad$ $(-3) \times (-4) =$ $\boxed{12}$

$(3)(4) =$ $\boxed{12}$ $\qquad$ $(-3)(-4) =$ $\boxed{12}$

$10 \div 2 =$ $\boxed{5}$ $\qquad$ $(-10) \div (-2) =$ $\boxed{5}$

$\dfrac{8}{2} =$ $\boxed{4}$ $\qquad$ $\dfrac{(-8)}{(-2)} =$ $\boxed{4}$

When multiplying/dividing integers that have different signs (one positive and one negative), the answer is always negative.

$(-3) \times 4 =$ $\boxed{-12}$ $\qquad$ $3 \times (-4) =$ $\boxed{-12}$

$(-3)(4) =$ $\boxed{-12}$ $\qquad$ $(3)(-4) =$ $\boxed{-12}$

$(-10) \div 2 =$ $\boxed{-5}$ $\qquad$ $10 \div (-2) =$ $\boxed{-5}$

$\dfrac{(-8)}{2} =$ $\boxed{-4}$ $\qquad$ $\dfrac{8}{(-2)} =$ $\boxed{-4}$

Addition of Integers

$(-4) + (-7) =$	$(+6) + (-4) =$	$(+2) + (+8) =$
$(+7) + (+2) =$	$(-7) + (+4) =$	$(+6) + (-9) =$
$(-9) + (+5) =$	$(-1) + (+8) =$	$(-9) + (-9) =$
$(+2) + (-1) =$	$(-5) + (+5) =$	$(+4) + (+7) =$
$(-5) + (-8) =$	$(+9) + (-4) =$	$(+6) + (-8) =$
$(+6) + (-9) =$	$(-3) + (+3) =$	$(-2) + (-5) =$
$(-3) + (-2) =$	$(+6) + (+4) =$	$(+7) + (-8) =$
$(+6) + (-6) =$	$(-2) + (-2) =$	$(-9) + (+5) =$
$(+4) + (+6) =$	$(-7) + (-1) =$	$(-6) + (-2) =$
$(-8) + (-2) =$	$(+5) + (+7) =$	$(+4) + (-4) =$

Subtraction of Integers

$(+5) - (+2) =$	$(-9) - (+3) =$	$(-7) - (-8) =$
$(-3) - (-4) =$	$(+2) - (+7) =$	$(+2) - (-1) =$
$(-7) - (+6) =$	$(+6) - (-1) =$	$(+6) - (+8) =$
$(+2) - (-4) =$	$(-8) - (-3) =$	$(-5) - (+6) =$
$(-8) - (-5) =$	$(+1) - (+4) =$	$(+2) - (-3) =$
$(+5) - (+9) =$	$(-2) - (-2) =$	$(-8) - (+2) =$
$(-7) - (+1) =$	$(+6) - (-7) =$	$(-4) - (-5) =$
$(+4) - (-8) =$	$(-5) - (+2) =$	$(+3) - (+7) =$
$(+2) - (+6) =$	$(-3) - (-1) =$	$(+9) - (-6) =$
$(-1) - (-7) =$	$(-9) - (+9) =$	$(+8) - (+8) =$

Multiplication of Integers

$(-5) \times (+2) =$	$(+2) \times (-7) =$	$(-6) \times (-6) =$
$(+3) \times (+6) =$	$(-4) \times (-3) =$	$(+8) \times (+2) =$
$(-1) \times (-4) =$	$(+6) \times (-2) =$	$(-2) \times (-1) =$
$(+9) \times (-7) =$	$(-9) \times (+6) =$	$(+7) \times (-4) =$
$(-2) \times (+2) =$	$(+4) \times (+8) =$	$(-9) \times (+5) =$
$(-8) \times (-4) =$	$(+1) \times (-7) =$	$(+7) \times (+6) =$
$(+3) \times (-5) =$	$(-5) \times (-5) =$	$(+2) \times (-9) =$
$(+1) \times (+6) =$	$(+4) \times (-1) =$	$(-8) \times (-3) =$
$(-5) \times (-2) =$	$(-8) \times (-6) =$	$(-7) \times (+7) =$
$(-6) \times (+7) =$	$(+3) \times (-2) =$	$(+5) \times (-8) =$

Division of Integers

$(-5) \div (+5) =$	$(+7) \div (+1) =$	$(-9) \div (+3) =$
$(+8) \div (-2) =$	$(-8) \div (+4) =$	$(+5) \div (+1) =$
$(-7) \div (+1) =$	$(+6) \div (-2) =$	$(-6) \div (+3) =$
$(+4) \div (+2) =$	$(-9) \div (-3) =$	$(-9) \div (-9) =$
$(-6) \div (-3) =$	$(+5) \div (-5) =$	$(+8) \div (+4) =$
$(+8) \div (-4) =$	$(-2) \div (+1) =$	$(+3) \div (-3) =$
$(-3) \div (+1) =$	$(+6) \div (+6) =$	$(-9) \div (+3) =$
$(+9) \div (-3) =$	$(-8) \div (+2) =$	$(+8) \div (-2) =$
$(-6) \div (-2) =$	$(-7) \div (-7) =$	$(-6) \div (-6) =$
$(+1) \div (-1) =$	$(+2) \div (-2) =$	$(+4) \div (+1) =$