

Class-six

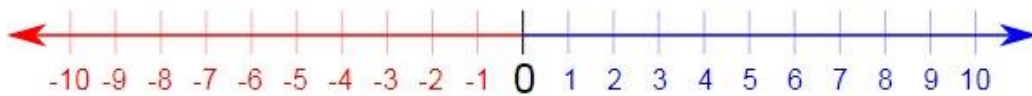
Subject- Math

Chapter 3(Integers)

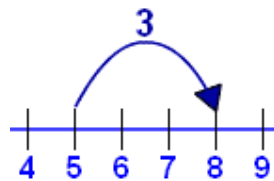
Date 11/08/2020

Lecture Sheet

Using the Number Line

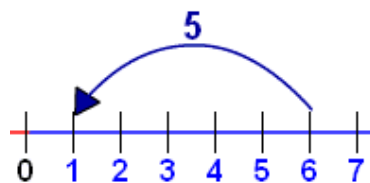


We can use the Number Line to help us **add**:



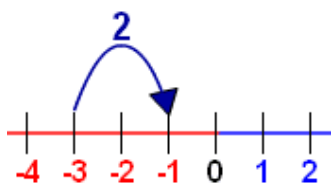
$$5 + 3 = 8$$

And **subtract**:

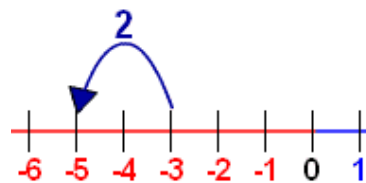


$$6 - 5 = 1$$

It is also great to help us with **negative numbers**:



$$-3 + 2 = -1$$



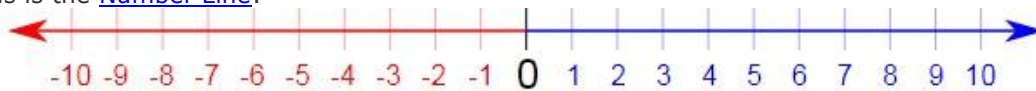
$$-3 - 2 = -5$$

So, when we get puzzling questions like "What is -6 plus 3 " we can use the number line!

How to Add and Subtract Positive and Negative Numbers

Numbers Can be Positive or Negative

This is the [Number Line](#):



Negative Numbers (-) Positive Numbers (+)



"-" is the negative sign.

"+" is the positive sign

The Rules:

It can all be put into **two rules**:

	Rule	Example
$+(+)$	Two like signs become a positive sign	$3+(+2) = 3 + 2 = 5$
$-(-)$		$6-(-3) = 6 + 3 = 9$
$+(-)$	Two unlike signs become a negative sign	$7+(-2) = 7 - 2 = 5$
$-(+)$		$8- (+2) = 8 - 2 = 6$

They are "like signs" when they are like each other (in other words: the same)

Another Common Sense Explanation:

A friend is +, an enemy is -

- $++ \Rightarrow +$ a friend of a friend is my friend
- $+ - \Rightarrow -$ a friend of an enemy is my enemy
- $- + \Rightarrow -$ an enemy of a friend is my enemy
- $-- \Rightarrow +$ an enemy of an enemy is my friend

Example: What is $5+(-2)$?

$+(-)$ are **unlike** signs (they are not the same), so they become a **negative sign**.

$$5+(-2) = 5 - 2 = 3$$

Example: What is $25-(-4)$?

$-(-)$ are **like** signs, so they become a **positive sign**.

$$25-(-4) = 25+4 = 29$$

Example: What is $-6+(+3)$?

$+(+)$ are **like** signs, so they become a **positive sign**.

$$-6+(+3) = -6 + 3 = -3$$

Start at -6 on the number line, move forward 3, and you end up at -3

Example: $2 + 3 = 5$

is really saying

"Positive 2 plus Positive 3 equals Positive 5"

We could write it as $(+2) + (+3) = (+5)$

Subtracting A Positive Number

Subtracting positive numbers is just simple subtraction

Example: $6 - 3 = 3$

is really saying

"Positive 6 minus Positive 3 equals Positive 3"

We could write it as $(+6) - (+3) = (+3)$

Adding A Negative Number

Now let's see what adding and subtracting **negative** numbers looks like:

Example: $6 + (-3) = 3$

is really saying

"Positive 6 plus Negative 3 equals Positive 3"

We could write it as $(+6) + (-3) = (+3)$

So, these have the **same result**:

- $(+6) - (+3) = (+3)$
- $(+6) + (-3) = (+3)$

In other words, **subtracting a positive** is the same as **adding a negative**

Example: What is $6 - (-3)$?

$$6 - (-3) = 6 + 3 = 9$$

Subtracting A Positive Number:

Example: What is $6 - (-3)$?

$$6 - (-3) = 6 + 3 = 9$$

Practice work at Home

1. Use number line and add the following integers:

- (a) $9 + (-6)$
- (b) $5 + (-11)$
- (c) $(-1) + (-7)$
- (d) $(-5) + 10$
- (e) $(-1) + (-2) + (-3)$
- (f) $(-2) + 8 + (-4)$

2. Add without using number line:

- (a) $11 + (-7)$
- (b) $(-13) + (+18)$
- (c) $(-10) + (+19)$
- (d) $(-250) + (+150)$
- (e) $(-380) + (-270)$
- (f) $(-217) + (-100)$

3. Find the difference

- (a) $35 - (20)$
- (b) $72 - (90)$
- (c) $(-15) - (-18)$
- (d) $(-20) - (13)$
- (e) $23 - (-12)$
- (f) $(-32) - (-40)$

