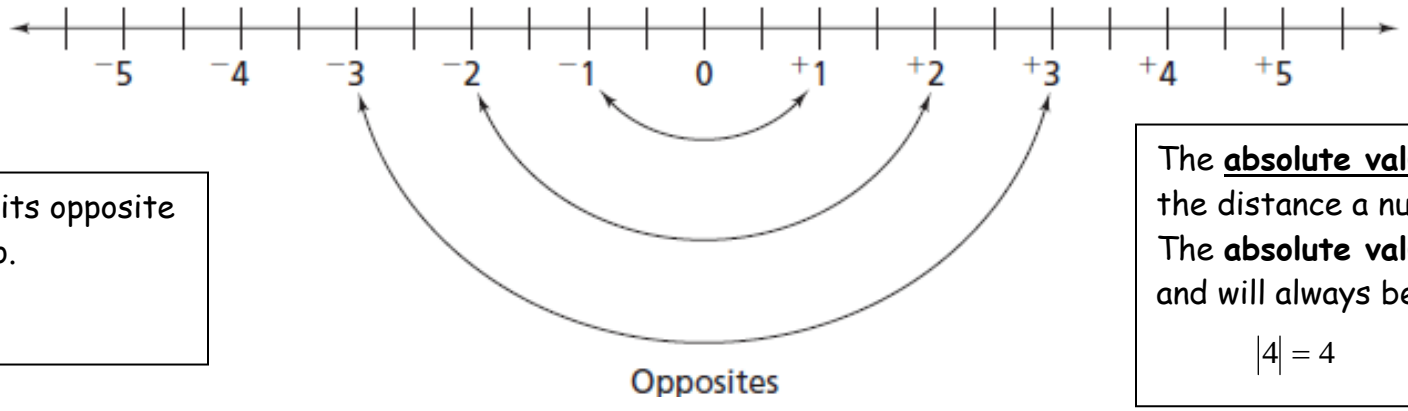
Integers

Integers are the set of whole numbers and their opposites.



A number plus its opposite is equal to zero.

5 + (-5) = 0

The **absolute value** of a number is the distance a number is from zero. The **absolute value** is a distance and will always be **positive**.

$|4| = 4$ $|-3| = 3$

ADDING INTEGERS

Chip Board

1. Set up chipboard by putting chips on the chip board for the first part of the problem – Remember black chips are positive and red are negative.
2. Add more chips to the chip board from the second part of the problem
3. Calculate the value of the chip board
   REMEMBER:
   - Pair up the black and red chips.
   - One black chip & one red chip equal zero.
   - Remove each pair from the board
   - The final value is represented by what is left on the board.

Number Line

1. Find starting point
2. **ADDING** mean you'll **MOVE** to the **RIGHT**.
3. If you come to a **NEGATIVE SIGN** in the problem, you must **CHANGE DIRECTIONS**.
4. Move and see where you land, that is your answer.

Rules

1. **Positive + Positive = Positive**
   - Just add
   - Answer is positive
2. **Negative + Negative = Negative**
   - Just add the absolute values
   - Answer is negative
3. **Negative + Positive = Neg. or Pos.**
   Positive + Negative = Neg. or Pos.
   - Subtract the absolute values
   - If you have more negatives, the answer is negative
   - If you have more positives, the answer is positive.

SUBTRACTING INTEGERS

Chip Board

1. Set up chipboard by putting chips on the chip board for the 1st part of the problem – Remember: Black chips are positive and red are negative.

2. Subtraction means you must "take away" or remove chips that represent the 2nd part of the problem.
   - If you do not have enough black or red chips to "take away", you must first add **convenient zeroes**.
   - **Convenient zeroes** are pairs of red and black chips that can be added to the chip board but won't change its value.
   - Ex. 2 red chips and 2 black chips equal zero so they would not change the value of the chip board.
   - When you have enough chips to represent second part of the problem, remove them.
3. Calculate the value of the chip board.

Number Line #1

1. Find starting point

2. **SUBTRACTING** mean you'll **MOVE** to the LEFT.

3. If you come to a **NEGATIVE SIGN** in the problem, you must **CHANGE DIRECTIONS**.

4. Move and see where you land, that is your answer.

Number Line #2

1. Subtraction means you are finding a "difference".
   - "Difference" basically means that you need to find out how far apart the numbers are from each other.

2. Put both numbers on the number line and see how many far apart they are.

3. Now you must determine whether you answer is positive or negative.
   - A large number minus a smaller number has a positive answer.
   - A small number minus a larger number has a negative answer.

   Large – Small = Positive
   Small – Large = Negative

Rules

1. Rewrite the subtraction problem as an addition problem.
   - Subtracting a number is the same as adding it's opposite.

Examples:

7 – 5 = is the same as
7 + (-5) =
Subtracting 5 is the same as adding the opposite of 5 which is (-5).

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-6 – (-3) =
-6 + 3 =
Subtracting -3 is the same as adding it's opposite (3).

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-2 – 9 =
-2 + (-9) =
Subtracting 9 is the same as adding its opposite (-9).

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2. Now just follow the rules for adding integers.

Multiplying Integers

- Positive x Positive = Positive
- Negative x Negative = Positive
- Positive x Negative = Negative
- Negative x Positive = Negative

Dividing Integers

- Positive ÷ Positive = Positive
- Negative ÷ Negative = Positive
- Positive ÷ Negative = Negative
- Negative ÷ Positive = Negative