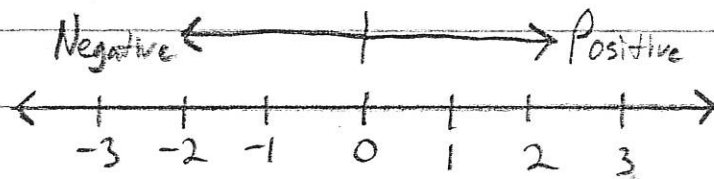
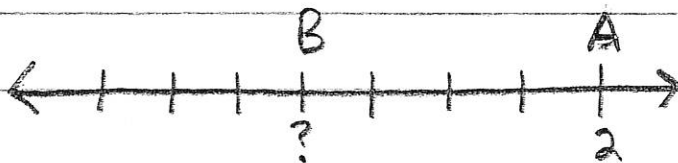


Integers on the Number Line

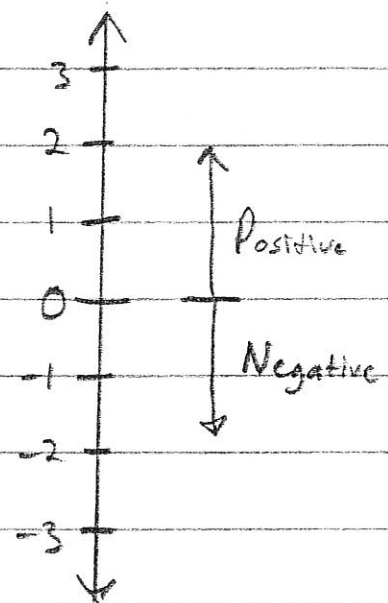
Examples of Integers $\rightarrow 1, 7, 20, 0, -4, -18, -24$



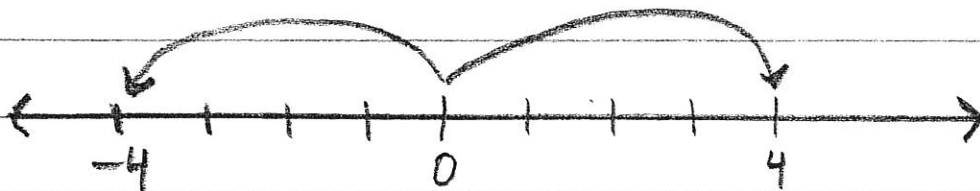
1) IF A is 2 on the number line, then what is B?



B is -2



2) What is the opposite of -4?



The opposite of -4 is 4.

Integers in Real-World Situations

Write an integer for each situation.

1) A gain of 20 pounds

20

2) A temperature of 30

degrees below zero

-30

3) A deposit of \$25

25

4) A withdrawal of \$60

-60

Positive Number → Gain, Credit, Receive, Deposit, Profit

Negative Number → Loss, Charge, Below Zero, Withdraw, Owe

5) Write a story problem that includes -12 and 6.

Yesterday the high temperature was 6°F and the low temperature was 12 degrees below zero Fahrenheit.

Adding Integers

Same Sign (SS) \rightarrow Add \rightarrow Keep Sign

or

Different Sign (DS) \rightarrow Subtract \rightarrow Original Sign of
Larger Absolute Value

$$\textcircled{1} \quad -10 + (-15) \quad \text{SS} \\ -25$$

$$\textcircled{2} \quad -21 + 10 \quad \text{DS} \\ -11$$

$$\textcircled{3} \quad 18 + (-9) \quad \text{DS} \\ 9$$

$$\textcircled{4} \quad -3 + (-22) \quad \text{SS} \\ -25$$

Evaluate each expression if $x = -5$, $y = -12$,
and $z = 8$.

$$\textcircled{5} \quad x + y \\ -5 + (-12) \quad \text{SS} \\ -17$$

$$\textcircled{6} \quad y + z \\ -12 + 8 \quad \text{DS} \\ -4$$

Subtracting Integers

$$\textcircled{1} \quad -3 - 8 \quad \text{SS} \\ -11$$

$$\textcircled{2} \quad 12 - 15 \quad \text{DS} \\ -3$$

$$\textcircled{3} \quad -5 - (-8) \quad \text{DS} \\ \quad \quad \quad \downarrow + \\ \quad \quad \quad 3$$

$$\textcircled{4} \quad 9 - (-6) \quad \text{SS} \\ \quad \quad \quad \downarrow + \\ \quad \quad \quad 15$$

Evaluate each expression if $x = -5$, $y = -10$, and $z = 6$

$$\textcircled{5} \quad x - z \\ -5 - 6 \quad \text{SS} \\ -11$$

$$\textcircled{6} \quad y - x \\ -10 - (-5) \quad \text{DS} \\ -5$$

Multiplying and Dividing Integers

1) Multiply or Divide absolute values of each number

2) Count # of negative signs

→ Even amount, answer is (+)

→ Odd amount, answer is (-)

$$\textcircled{1} \quad -8(-2) \text{ Even}$$
$$\quad \quad \quad 16$$

$$\textcircled{2} \quad 3(-5) \text{ Odd}$$
$$\quad \quad \quad -15$$

$$\textcircled{3} \quad -24 \div 6 \text{ Odd}$$
$$\quad \quad \quad -4$$

$$\textcircled{4} \quad -120 \div (-3) \text{ Even}$$
$$\quad \quad \quad 40$$

Evaluate each expression if $a = -5$, $b = -10$, $c = 2$

$$\textcircled{5} \quad 5ac$$
$$\quad 5(-5)(2)$$
$$\quad \boxed{-50}$$

$$\textcircled{6} \quad b^2 - 2a$$
$$\quad (-10)^2 - 2(-5)$$
$$\quad 100 - 2(-5)$$
$$\quad 100 - (-10)$$
$$\quad \boxed{110}$$

$$\textcircled{7} \quad \frac{a+b}{3}$$
$$\quad \frac{-5+(-10)}{3}$$
$$\quad \frac{-15}{3} = \boxed{-5}$$