



Algebra1Coach.com

Adding and Subtracting Real Numbers

Unit 1 Lesson 5

ADDING AND SUBTRACTING REAL NUMBERS

Students will be able to:

add and subtract integers and rational numbers.

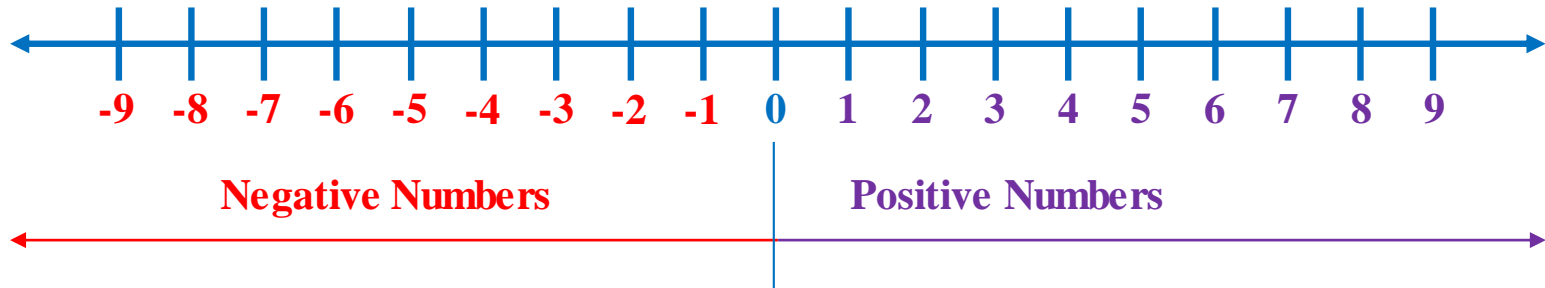
Key Vocabulary:

- Rules of Addition
- Rule of Subtraction
- Opposites
- Additive Inverse



ADDING AND SUBTRACTING REAL NUMBERS

- We can use a number line to add any real numbers.
- Adding a positive number by moving to the right.
- Adding a negative number by moving to the left.



ADDING AND SUBTRACTING REAL NUMBERS

Sample Problem 1: Use a number line to find the sum.

a. $-6 + 9 = 3$



b. $4 + (-7) = -3$



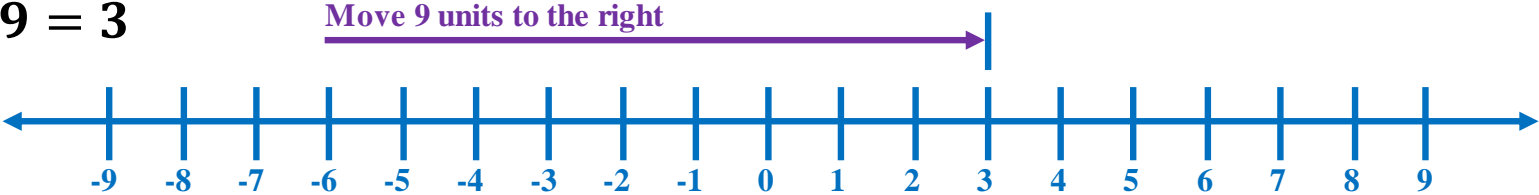
c. $-3 + 8 = 5$



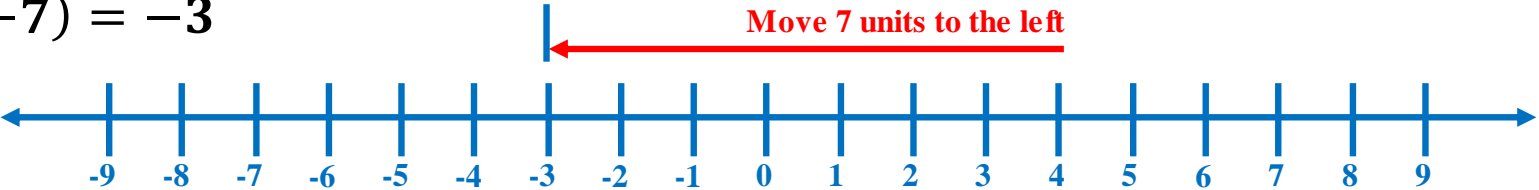
ADDING AND SUBTRACTING REAL NUMBERS

Sample Problem 1: Use a number line to find the sum.

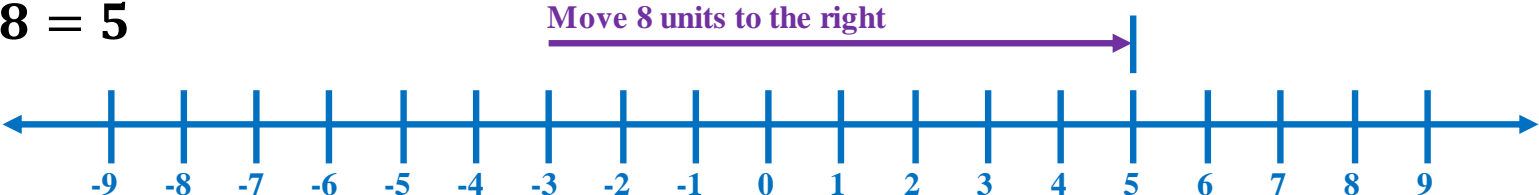
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b. $4 + (-7) = -3$



c. $-3 + 8 = 5$



ADDING AND SUBTRACTING REAL NUMBERS

RULES OF ADDITION: without a number line

To add two numbers with the same sign:

1. Add their absolute values.
2. Attach the common sign.

To add two numbers with opposite signs:

1. Subtract the smaller absolute value from the larger absolute value.
2. Attach the sign of the number with the larger absolute value.

ADDING AND SUBTRACTING REAL NUMBERS

Sample Problem 2: Find the sum.

a. $1.4 + (-2.6) + 3.1$

b. $-\frac{1}{2} + 3 + \frac{1}{2}$

c. $-11 + (-7)$

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Sample Problem 2: Find the sum.

a. $1.4 + (-2.6) + 3.1 = -1.2 + 3.1 = 1.9$

b. $-\frac{1}{2} + 3 + \frac{1}{2} = -\frac{1}{2} + \frac{1}{2} + 3 = 3$

c. $-11 + (-7) = -18$

ADDING AND SUBTRACTING REAL NUMBERS

RULE OF SUBTRACTION: without a number line

To subtract b from a , add the opposite of b to a :

$$a - b = a + (-b)$$

The result is the difference of a and b .



ADDING AND SUBTRACTING REAL NUMBERS

Sample Problem 3: Find the difference.

a. $-7 - 6$

b. $-\frac{5}{4} - \left(-\frac{1}{4}\right)$

c. $20 - 21$

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Sample Problem 3: Find the difference.

a. $-7 - 6 = -13$

b. $-\frac{5}{4} - \left(-\frac{1}{4}\right) = -\frac{5}{4} + \frac{1}{4} = -\frac{4}{4} = -1$

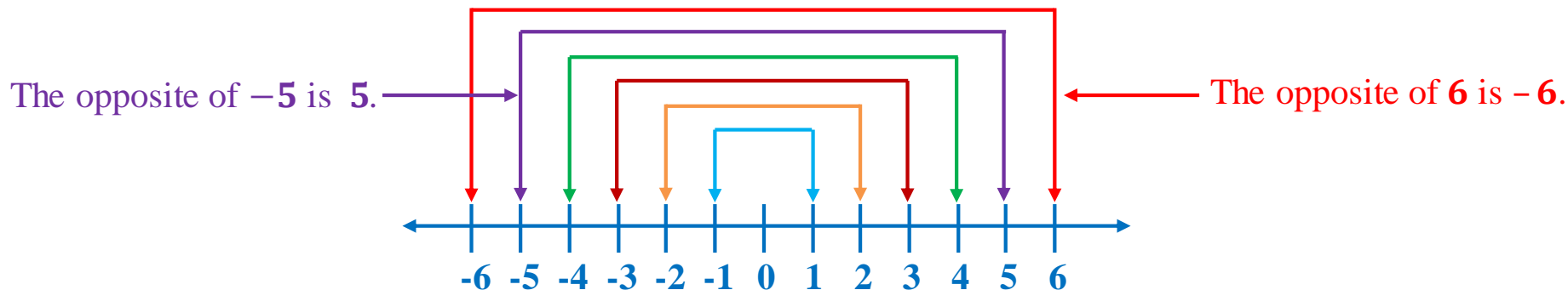
c. $20 - 21 = -1$

ADDING AND SUBTRACTING REAL NUMBERS

OPPOSITES are pair of positive real numbers with its negative. Opposites are additive inverse of each other.

ADDITIVE INVERSE of a number a is the number that when add to a will yield zero.

$$a + (-a) = 0$$



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Sample Problem 4: Evaluate each expression.

a. $3 - (-4) - 2 + 8$

b. $-9 - 2 + (-6)$

c. $-12 + (-11) + 17$



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Sample Problem 4: Evaluate each expression.

$$\text{a. } 3 - (-4) - 2 + 8 = 3 + 4 + 6 = 7 + 6 = 13$$

$$\text{b. } -9 - 2 + (-6) = -11 - 6 = -17$$

$$\text{c. } -12 + (-11) + 17 = -23 + 17 = -6$$



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Sample Problem 5: The average height of a NBA player is 79 inches while the height of an average man is 69 inches. What is the difference between their heights?

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$$\begin{aligned} &= 79 - 69 \\ &= 10 \text{ inches} \end{aligned}$$