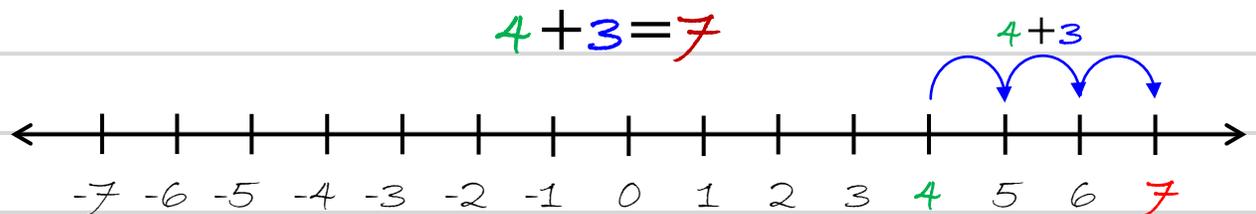


Adding Negative Numbers

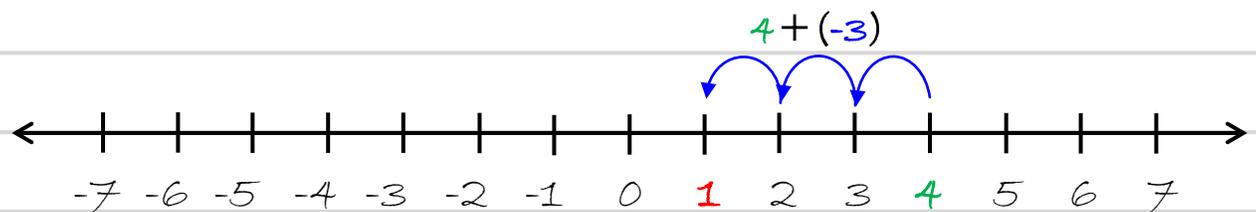
Objective 1 Understand how to add a Negative Number

Remember that when finding the sum of four and three, start at four and move right three unit to get seven.



Now consider $4 + (-3)$. Notice that in this case we are adding a negative three! Applying the Commutative Property for addition we get the following: $4 + (-3) = -3 + 4$

Since $-3 + 4 = 1$, by the Commutative Property it must be true that $4 + (-3) = 1$.



Notice that $4 + (-3)$ is the same as performing $4 - 3$. We can now make a general conclusion.

Conclusion: Adding a negative number is the same as subtracting its opposite.

Rewriting the addition of a negative quantity to subtracting its opposite, is a necessary skill for algebra! Although, with problems that have numeric values such as $5 + (-3)$, you may be able to get the answer without rewriting it.

Example 1: Rewrite the following addition problems as equivalent subtraction problems. Next, find the value of the expression if possible.

- a) $a + (-b)$
- b) $x + (-y)$
- c) $-3 + (-2)$
- d) $5 + (-8)$

Example 2: Apply the Commutative Property for addition to each expression and evaluate.

- a) $4 + (-7)$
- b) $8 + (-12)$

Example 3: Evaluate each expression.

a) $(3-12) + (-7+5)$ b) $5 + (-2) - 8 + (-6)$

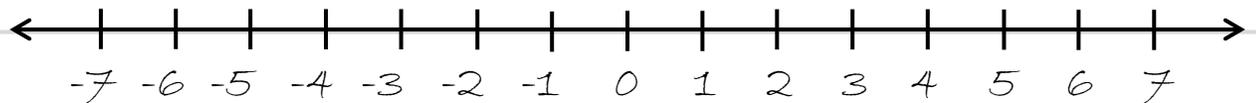
Example 4: Write an expression for each word statement. Next, evaluate the expression.

a) Find the sum of -8, -10 and 3.

b) Find the sum of 3, -7, 6, and -9.

Answer the following homework questions.

In Exercises 1 - 15, use the number line to evaluate each expression.



1) $-5 + (-8)$

6) $0 + (-6)$

11) $5 - 4 + (-6)$

2) $-2 + (-7)$

7) $0 + (-8)$

12) $3 - 8 + (-2)$

3) $7 + (-12)$

8) $5 + (-5)$

13) $4 - 6 + (-3)$

4) $-1 + (-5)$

9) $3 + (-3)$

14) $-2 - 2 + (-2)$

5) $6 + (-10)$

10) $-3 + (-3)$

15) $-3 - 2 + (-1)$

In Exercises 16 - 18, write an expression for each word statement.

Next, evaluate the expression.

16) Find the sum of -3, -5, and -5.

17) Find the sum of -20, 30, and -40.

18) Find the sum of -32, 27, and -46.