***Rules for Adding Integers***

There are two rules that you must follow when adding integers.

You must look at the signs of each number that you are adding to determine which rule to use!

**Rule 1:**

If the signs are the same, add and keep the same sign.

**Add** the numbers.

The sum of two positive integers is always **positive.**

**Add** the numbers.

The sum of two negative integers is always **negative.**

**Rule 2:**

If the signs are different, subtract the numbers and use the sign of the larger number.

**Subtract** the numbers and take **the sign of the bigger number.**

**Subtract** the numbers and take **the sign of the bigger number.**

The sum of a positive integer and a negative integer is sometimes positive, sometimes negative, and sometimes zero.

The sum of a negative number and its opposite positive number of the same size equals zero.

**Sample Problem 1**: **Find the sum of each expression below using the rules for adding integers.**

|  |  |  |
| --- | --- | --- |
| **a.** |  |  |
| **b.** |  |  |
| **c.** |  |  |
| **d.** |  |  |

**Sample Problem 2**: **Find the sum of each expression below using the rules for adding integers.**

|  |  |  |
| --- | --- | --- |
| **a.** |  |  |
| **b.** |  |  |
| **c.** |  |  |
| **d.** |  |  |

***Using the Number Line to Add Integers***

We can also use the number line and direction arrows to illustrate addition of integers.

Let a positive number be represented by a right-facing arrow and a negative number be represented by   
a left-facing.

To add two integers, find the point on the number line corresponding to the first addend (integer).

The sum is the number directly below the tip of the arrow.

**Negative integers** **Positive integers**

**0**

**1**

**2**

**3**

**4**

**-1**

**-2**

**-3**

**-4**

**5**

**6**

**-5**

**-6**

**Sample Problem 3**: **Show the addition on the number line. Then write the sum.**

|  |  |  |
| --- | --- | --- |
| **a.** |  | **0**  **1**  **2**  **3**  **4**  **-1**  **-2**  **-3**  **-4**  **5**  **6**  **-5**  **-6** |
| **b.** |  | **0**  **1**  **2**  **3**  **4**  **-1**  **-2**  **-3**  **-4**  **5**  **6**  **-5**  **-6** |
| **c.** |  | **0**  **1**  **2**  **3**  **4**  **-1**  **-2**  **-3**  **-4**  **5**  **6**  **-5**  **-6** |

|  |  |  |
| --- | --- | --- |
| **d.** |  | **0**  **1**  **2**  **3**  **4**  **-1**  **-2**  **-3**  **-4**  **5**  **6**  **-5**  **-6** |

**Sample Problem 4**: **Solve each expression below.**

|  |  |  |
| --- | --- | --- |
| **a.** |  |  |
| **b.** |  |  |
| **c.** |  |  |