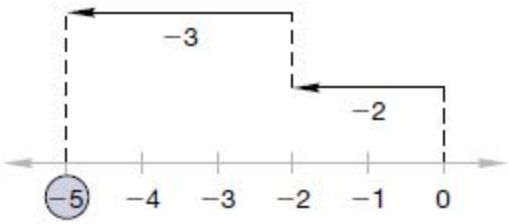
Lesson 64

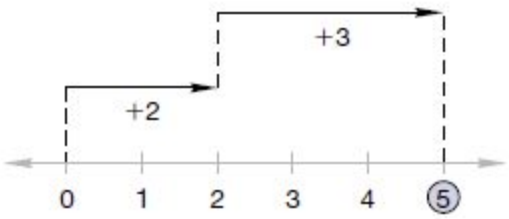
Course 2-Teacher Notes

Objective: TSW add positive and negative numbers without a number line..

From our practice in a previous lesson, we have seen that when we add two negative numbers, the sum is a <u>negative</u> number. When we add two positive numbers, the sum is a <u>positive</u> number.

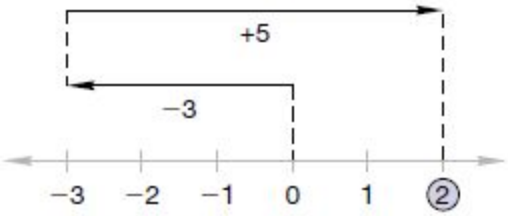


$(-2) + (-3) = -5$

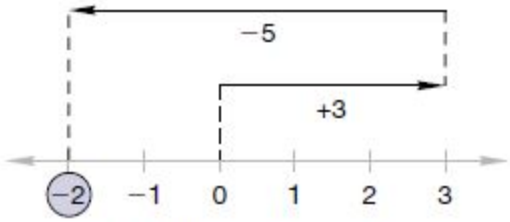


$(+2) + (+3) = +5$

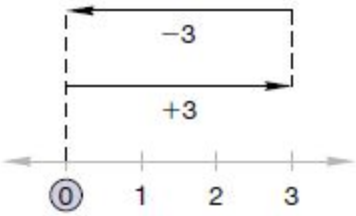
We have also seen that when we add a positive number and a negative number, the sum is either positive, negative, or zero depending on the greater number.



$(-3) + (+5) = +2$



$(+3) + (-5) = -2$



$(+3) + (-3) = 0$

Rules to Adding and Subtracting Numbers

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

If the signs are **different**, subtract and keep the sign of the larger number

Example 1.

Find each sum:

a. $(-54) + (-78)$ **b.** $(+45) + (-67)$ **c.** $(-92) + (+92)$

SOLUTION:

a. Since the signs are the same, we add the absolute values and use the same sign for the sum.

$$(-54) + (-78) = \mathbf{-132}$$

b. Since the signs are different, we find the difference of the absolute values and keep the sign of -67 because its absolute value, 67, is greater than 45.

$$(+45) + (-67) = \mathbf{-22}$$

c. The sum of two opposites is zero, a number which has no sign.

$$(-92) + (+92) = \mathbf{0}$$

Example 2

Find the sum: $(-3) + (-2) + (+7) + (-4)$

SOLUTION:

$(-3) + (-2) + (+7) + (-4)$	problem
$(-5) + (+7) + (-4)$	added -3 and -2
$(+2) + (-4)$	added -5 and $+7$
$\mathbf{-2}$	added $+2$ and -4

Example 3

Find each sum:

a. $\left(-2\frac{1}{2}\right) + \left(-3\frac{1}{3}\right)$ **b.** $(+4.3) + (-7.24)$

SOLUTION:

a. The signs are both negative. We add the absolute values and keep the same sign.

$$\left(-2\frac{1}{2}\right) + \left(-3\frac{1}{3}\right) = -5\frac{5}{6}$$

$$\begin{array}{r} 2\frac{1}{2} = 2\frac{3}{6} \\ +\ 3\frac{1}{3} = 3\frac{2}{6} \\ \hline 5\frac{5}{6} \end{array}$$

b. The signs are different. We find the difference of the absolute values and keep the sign of -7.24.

$$(+4.3) + (-7.24) = \mathbf{-2.94}$$

$$\begin{array}{r} \overset{6}{7}.\overset{1}{2}4 \\ -\ 4.3 \\ \hline 2.94 \end{array}$$

Question: Will the sum of $(-34)+(+43)$ be positive or negative? Why? Positive. The larger number is positive.

Example 4.

On one stock trade Mr. Figuera lost $450. On a second trade Mr. Figuera gained $800. What was the net result of the two trades?

SOLUTION:

A loss may be represented by a negative number and a gain by a positive number. So the results of the two trades may be expressed this way:

$$(-450) + (+800) = \mathbf{+350}$$

YOU TRY!!!

a. $(-56) + (+96)$ **b.** $(-28) + (-145)$

a. $(-56) + (+96)$ $+40$ **b.** $(-28) + (-145)$ -173

i. *Connect* On three separate stock trades Mrs. Francois gained $250, lost $300, and gained $525. Write an expression that shows the results of each trade. Then find the net result of the trades.

The net result was a gain of $475.

CW: 11, 12, 21, 23, 13, 2, 7, 8, 9, 17, 18, 27

HW: 1, 3-6, 10, 14-16, 19-20, 22, 24-26, 28-30