

Lesson 1.2:

Adding Integers

Rules for Adding:

Two integers with the same sign

They "join forces" and you add their absolute values, using the sign that they share.

Two integers with different signs

Determine who wins, Team Positive or Team Negative, and by how many players. (Find the difference between their absolute values and use the sign of the one with the greater absolute value.)

Two integers that vary in sign (this means they are opposite integers)

Team Positive and Team Negative tie, which means they have a score of "0." They cancel each other out.

Key Ideas

Adding Integers with Different Signs

Words Subtract the lesser absolute value from the greater absolute value. Then use the sign of the integer with the greater absolute value.

Numbers $8 + (-10) = -2$ $-13 + 17 = 4$

Additive Inverse Property

Words The sum of an integer and its **additive inverse**, or opposite, is 0.

Numbers $6 + (-6) = 0$ $-25 + 25 = 0$ **Algebra** $a + (-a) = 0$

Which team will win? By how many players?

Example 2:

a. Find $5 + (-10)$

-5
 Team Negative wins By 5 players

b. Find $-3 + 7$

$+4$

c. Find $-12 + 12$

0

It's a tie! Nobody wins

 **Key Idea****Adding Integers with the Same Sign**

Words Add the absolute values of the integers. Then use the common sign.

Numbers $2 + 5 = 7$ $-2 + (-5) = -7$

If they're on the same team, they join forces.

Example 1:

Find $-2 + (-4)$. Use a number line or integer chips to check your answer.

$$-2 + (-4) = -6$$

Add.

1. $7 + 13$

20

2. $-8 + (-5)$

-13

3. $-20 + (-15)$

-35

Example 3:

The list shows four bank account transactions in July. Find the change C in the account balance.

JULY TRANSACTIONS	
Withdrawal	-\$40
Deposit	\$50
Deposit	\$75
Withdrawal	-\$50

$-40 + 50 = 10$

$10 + 75 = 85$

$85 + (-50) = 35$

$\boxed{\$35}$

$-40 + 50 + 75 + (-50)$
 $\underbrace{50 + 75 + (-50)}_0$

$-40 + 75 = 35$

$\boxed{\$35}$

Add.

4. $-2 + 11$
9

5. $9 + (-10)$
-1

6. $-31 + 31$
0

7. **WHAT IF...**the deposit amounts are changed to \$30 and \$40. Find the change C in the account balance.

$-40 + 30 = -10$ $-10 + 40 = 30$

$30 + (-50) = -20$ $-\$20$

JULY TRANSACTIONS	
Withdrawal	-\$40
Deposit	\$30
Deposit	\$40
Withdrawal	-\$50

$-40 + 30 + 40 + (-50)$
0

$30 + (-50) = -20$ $-\$20$