

LESSON 11: Add Integers

Warm-Up

Directions: Solve the following addition and subtraction problems.

1. $18 + 7 =$

2. $18 - 7 =$

3. $10 + 8 =$

4. $10 - 8 =$

5. $9 + 6 =$

6. $9 - 6 =$

7. $12 + 5 =$

8. $12 - 5 =$

LESSON 11: Add Integers

Directions: : Complete the following SOLVE problem with your teacher. You will only complete the S step.

Jackie gets paid \$5.50 an hour for 40 hours of work per week. She deposited \$135.00 into her checking account. Her balance before the deposit was -\$30.00. What was the balance of Jackie's account after the deposit?

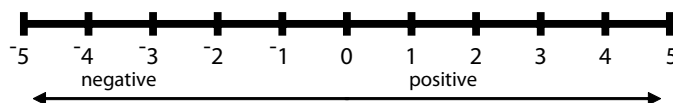
S Underline the question.

This problem is asking me to find _____.

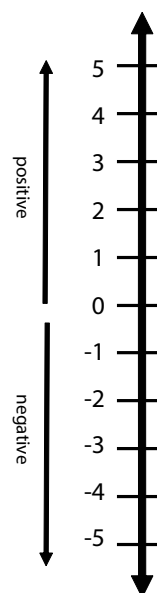
Directions: Complete this section with your teacher and partner.

1. Daniel earns \$4.00 walking his neighbor's dog. He pays his brother \$4.00 he owes him from last week.
 - a. Use unit tiles to represent the situation.

- b. Use a horizontal number line to represent the situation.



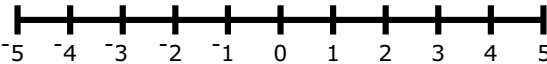
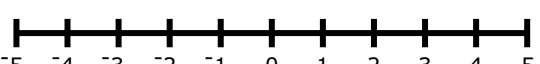
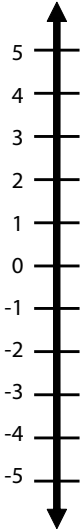
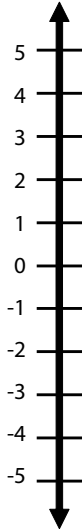
- c. Use a vertical number line to represent the situation.



Conclusion: When we add a number and its opposite, the sum is _____. This is known as the _____.

LESSON 11: Add Integers

Directions: Complete this page with your teacher and partner.

1. $3 + 2 =$	2. $-3 + -2 =$
	
	

What did you notice about Problem 1 and Problem 2?

In Problem 1 when you added two positive integers, what was the sum?

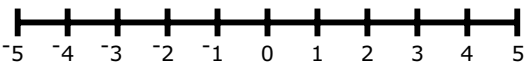
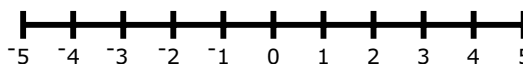
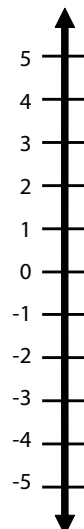
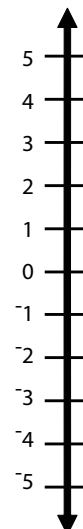
In Problem 2 when you added two negative integers, what was the sum?

What is your conclusion?

Justify your thinking using one of the number line models.

LESSON 11: Add Integers

Directions: Complete this page with your teacher and partner.

3. $3 + ^{-}2 =$	4. $^{-}3 + 2 =$
	
	

What did you notice about Problem 3 and Problem 4?

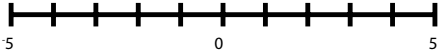
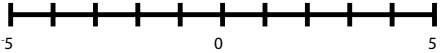
In Problem 3, when you added the two integers, what was the sum?

In Problem 4, when you added the two integers, what was the sum?

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Directions: Complete this page with your teacher and partner.

Let's look at Problems 3 and 4 using the horizontal number line and see what conclusions we can draw.

3. $3 + ^{-}2 =$	4. $^{-}3 + 2 =$
When we added the two values, where did we start on the number line?	When we added the two values, where did we start on the number line?
Which direction did we move first?	Which direction did we move first?
How did we model adding the negative two?	How did we model adding the positive two?
When we move to the right on the number line, what operation are we modeling?	When we move to the right on the number line, what operation are we modeling?
When we move to the left on the number line, what operation are we modeling?	When we move to the left on the number line, what operation are we modeling?
If we look at the number values without the signs, what operation did we use to determine the answer in this problem?	If we look at the number values without the signs, what operation did we use to determine the answer in this problem?
How was the sign of the sum determined?	How was the sign of the sum determined?
Adding Integers with Property Application	
Think about this: Would the sum change if the order of the addends was switched? $3 + ^{-}2 = 1$ $^{-}2 + 3 = 1$ Defend your answer using the number line.	Think about this: Would the sum change if the order of the addends was switched? $^{-}3 + 2 = ^{-}1$ $2 + ^{-}3 = ^{-}1$ Defend your answer using the number line.
	
Was the sum the same for both problems?	Was the sum the same for both problems?
Did the order of the addends change the sum?	Did the order of the addends change the sum?
What property are we representing?	What property are we representing?

LESSON 11: Add Integers

Directions: Complete this page with your partner.

Problem	Pictorial	Answer	Explanation
1. $1 + 3$			
2. $-1 + -3$			
3. $1 + -3$			
4. $3 + -1$			
Add the following integers without using a model.			
Problem	Explanation		
5. $6 + 2 =$			
6. $4 + -9 =$			
7. $-7 + -5 =$			
8. $-10 + 3 =$			

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Directions: Complete this page with your teacher and partner.

RULES FOR OPERATIONS WITH INTEGERS
ADDITION: Two integers with same signs: Two integers with different signs:
SUBTRACTION: Subtraction is the same as Make two changes to the problem: After these two steps:
MULTIPLICATION: Two integers with same signs: Two integers with different signs:
DIVISION: Two integers with same signs: Two integers with different signs:

LESSON 11: Add Integers

Directions: Complete the following SOLVE problem with your partner.

Jackie gets paid \$5.50 an hour for 40 hours of work per week. | She deposited \$135.00 into her checking account. | Her balance before the deposit was -\$30.00. | What was the balance of Jackie's account after the deposit?

S Underline the question.

This problem is asking me to find _____.

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts.

Stop!

- What are we trying to find?
- What does this mean?

Discuss:

- What was the value of her account before the deposit?
- What does this mean?
- What operation will we use?
- Explain your thinking.

L Write in words what your plan of action will be.

Choose an operation or operations.

V Estimate your answer.

Carry out your plan.

E Does your answer make sense? (Compare your answer to the question.)

Is your answer reasonable? (Compare your answer to the estimate.)

Is your answer accurate? (Check your work.)

Write your answer in a complete sentence.

LESSON 11: Add Integers

Directions: Complete the following SOLVE problem with your partner.

Tom went to Mall-Mart to purchase a coffee maker and return a step ladder. The step ladder he returned was worth \$25.00, and the coffee maker cost \$39.00. If Tom used a credit card for the transaction, what amount will his statement show he spent on this visit to Mall-Mart?

S Underline the question.

This problem is asking me to find _____.

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts.

Stop!

- What are we trying to find?

- What does this mean?

Discuss:

- What number represents the amount on the statement for the ladder return?

- What number represents the amount on the statement for the coffee maker?

- What does this mean?

- What operation will we use?

- Explain your thinking.

L Write in words what your plan of action will be.

Choose an operation or operations.

V Estimate your answer.

Carry out your plan.

E Does your answer make sense? (Compare your answer to the question.)

Is your answer reasonable? (Compare your answer to the estimate.)

Is your answer accurate? (Check your work.)

Write your answer in a complete sentence.

LESSON 11: Add Integers

Directions: Complete the following SOLVE problem with your partner.

A hiker was walking on a mountainous trail. The hiker began at an elevation of 450 feet above sea level, and then ascended 120 feet toward the top of the mountain. What was the hiker's new position?

S Underline the question.

This problem is asking me to find _____.

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts.

Stop!

- What are we trying to find?
- What does this mean?

Discuss:

- What was the hiker's elevation before ascending?
- What does this mean?
- What operation will we use?
- Explain your thinking.

L Write in words what your plan of action will be.

Choose an operation or operations.

V Estimate your answer.

E Does your answer make sense? (Compare your answer to the question.)

Is your answer reasonable? (Compare your answer to the estimate.)

Is your answer accurate? (Check your work.)

Write your answer in a complete sentence.

LESSON 11: Add Integers

Directions: Complete the following SOLVE problem with your partner.

Justin owes his brother \$24.00 that he borrowed last month to buy a new video game. He borrows another \$15.00 on Saturday to go to the movies with his friends. What integer can be used to represent the amount of money that Justin owes his brother?

S Underline the question.

This problem is asking me to find _____.

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts.

Stop!

- What are we trying to find?
- What does this mean?

Discuss:

- What integer will represent the amount Justin owes his brother from the video game?
- What integer will represent the amount he borrows to go to the movies?
- What operation will we use?
- Explain your thinking.

L Write in words what your plan of action will be.

Choose an operation or operations.

V Estimate your answer.

Carry out your plan.

E Does your answer make sense? (Compare your answer to the question.)

Is your answer reasonable? (Compare your answer to the estimate.)

Is your answer accurate? (Check your work.)

Write your answer in a complete sentence.

LESSON 11: Add Integers

Directions: Complete the following SOLVE problem with your partner.

The temperature in Buffalo, New York, is usually very cold during the winter. On Tuesday morning at 6:00 am, the temperature was -10° . By noon, the temperature had increased 17° . What was the temperature at noon?

S Underline the question.

This problem is asking me to find _____.

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts.

Stop!

- What are we trying to find?
- What does this mean?

Discuss:

- What was the temperature at 6:00 am?
- What does this mean?
- What operation will we use?
- Explain your thinking.

L Write in words what your plan of action will be.

Choose an operation or operations.

V Estimate your answer.

Carry out your plan.

E Does your answer make sense? (Compare your answer to the question.)

Is your answer reasonable? (Compare your answer to the estimate.)

Is your answer accurate? (Check your work.)

Write your answer in a complete sentence.

LESSON 11: Add Integers

Directions: Complete the following problems. Draw pictures if needed.

1. $13 + 7 =$

2. $15 + ^{-}3 =$

3. $^{-}9 + 9 =$

4. Jonathan had a balance of \$120 dollars in his bank account at the beginning of the month. During the first week of the month, he wrote checks for \$45 and for \$28. What is his balance at the end of the month?

5. $^{-}18 + 6 =$

6. $9 + ^{-}3 =$

7. $12 + 7 =$

8. In Syracuse, New York, the low temperature for the day on January 15th was $^{-}19^{\circ}\text{F}$. During the day, the temperature rose 12 degrees by 2:00 pm. What was the temperature at 2:00 pm?

9. $16 + ^{-}35 =$

10. $32 + 15 =$

11. $^{-}15 + 15 =$

12. The hiking club is going on a two-day hike this weekend. They are starting at a point where the elevation is 100 feet above sea level. The first day, they will hike 150 feet down into a crater to their camp site. What is the new elevation? _____
_____ What integer can be used to represent the new elevation? _____

LESSON 11: Add Integers

Homework

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Name _____**Date** _____**Directions:** Find each sum.

1. $3 + 18 =$

2. $13 + ^{-}13 =$

3. $^{-}12 + ^{-}10 =$

4. $^{-}24 + 13 =$

5. Mark borrowed \$14.00 from his sister to buy a new CD. He then did some yard work for his neighbor and earned \$30.00. If he uses his yard work money to pay his sister back, what would be Mark's financial standing?

6. $32 + ^{-}18 =$

7. $^{-}76 + 17 =$

8. $36 + ^{-}16 =$

9. $^{-}34 + 13 =$

10. The temperature at 9 a.m. was $^{-}4^{\circ}\text{F}$. By noon, the temperature had increased 15 degrees. What was the temperature at noon?