

Chapter 1 – Performing Operations and Evaluating Expressions
Section 4 – Absolute Value and Adding Real Numbers

Materials Needed:

Objectives

1. Find the opposite of a number.
2. Find the absolute value of a number.
3. Add two real numbers with the same sign.
4. Add two real numbers with different signs.
5. Add real numbers pertaining to authentic situations.

Vocabulary

1. opposites
2. absolute value

Opening/Purpose

Lesson/Activity

OBJECTIVE 1 – Find the opposite of a number.

Two numbers are called **opposites** of each other if they are the same distance from 0 on the number line, but are on opposite sides of 0. To find the opposite of a number, we reflect the number across 0 on the number line.

The opposite of 5 is -5 . The opposite of -5 is 5.

Use reflections with a number line to show that $-(-a) = a$.

1. $-(-6) =$

2. $-(-(-5)) =$

We use parentheses to separate two opposite symbols or an operation symbol and an opposite symbol.

OBJECTIVE 2 – Find the absolute value of a number.

Definition: Absolute value

The **absolute value** of a number is the distance that the number is from 0 on the number line.

3. $|4|$

4. $|-7|$

5. $-|8|$

6. $-|-2|$

OBJECTIVE 3 – Add two real numbers with the same sign.

- 7a. A person has a credit card balance with a 0-dollar balance. If she uses her credit card to make two purchases for \$3 and \$4, what is the new balance?
- b. Write a sum that is related to the computation in Part (a).
- c. Use a number line to illustrate the sum found in Part (b).

Adding Two Numbers with the Same Sign

- To add two numbers with the same sign,
1. Add the absolute values of the numbers.
 2. The sum of the original numbers has the same sign as the sign of the original numbers.

8. $-3 + (-8)$

9. $-2.57 + (-6.84)$

10. $-5/8 + (-1/8)$

OBJECTIVE 4 – Add two real numbers with different signs.

- 11a. A brother owes his sister \$5. If he then pays her back \$2, how much does he still owe her?
- b. Write a sum that is related to your work in Part (a).
- c. Use a number line to illustrate the sum you found in Part (b).

Adding Two Numbers with Different Signs

- To add two numbers with different signs:
1. Find the absolute values of the numbers. Then subtract the smaller absolute value from the larger absolute value.
 2. The sum of the original numbers has the same sign as the original number with the larger absolute value.

12. $-9 + 2$ 13. $7 + (-4)$ 14. $-7/6 + 5/6$ 15. $-7 + (-4)$ 16. $-5.31 + 1.98$ 17. $329 + (-838)$

OBJECTIVE 5 – Add real numbers pertaining to authentic situations.

18. A person bounces several checks and is charged service fees such that the balance of the checking account is -78 dollars. The person then deposits \$250. Find the balance.
19. Two hours ago, the temperature was -9°F . If the temperature has increased by 4°F in the last two hours, what is the current temperature?

Closure/Review

Homework/Assessment

HW 1, 3, 5, 15, 23, 25, 39, 45, 53, 59, 63, 67, 69, 71, 75