Looking Ahead

Being able to accurately add both negative and positive real numbers is a fundamental skill needed to solve linear equations in one variable. We want to be able to find the value of the variable that makes the proposed equation a true statement. You may need to add both negative and positive numbers to both sides of the equation in order to balance it.

Example Preview

Solve the following linear equation.

$$-13 = -3u - 16$$

Solution

$$\begin{aligned} -13 &= -3u - 16 \\ -13 + 16 &= -3u - 16 + 16 \\ 3 &= -3u \\ \frac{3}{-3} &= \frac{-3u}{-3} \\ -1 &= u \end{aligned}$$

2.R.2 Exercises

Concept Check

True/False. Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

1. The sum of a positive number and a negative number is always positive.

2. When adding two numbers with unlike signs, the result uses the sign of the number with the larger absolute value.

3. The sum of two positive numbers can equal zero.

Practice

Add. Reduce any fractions to lowest terms.

4. $8+(-3)$

5. $2+(-8)$

6. $-\frac{1}{6}+\frac{7}{15}$

7. $3.2+(-1.2)+(-2.5)$

Add. Be sure to find the absolute values first.

8. $13+|-5|$

Applications

Solve.

9. ***Profit:*** For 2017, a business reports a profit of \$45,000 during the first quarter, a loss of \$8000 during the second quarter, a loss of \$2000 during the third quarter, and a profit of \$15,000 during the fourth quarter.

a. Write an addition expression to represent the total profit made by the company in 2017. Do not simplify.

b. Simplify the expression from Part **a.**

10. ***Oceans:*** A submarine dives to a depth of 250 feet below the surface. It rises 75 feet before diving an additional 100 feet. What is the final depth of the submarine?

Writing & Thinking

11. Describe, in your own words, how the sum of the absolute values of two numbers might be 0. (Is this even possible?)

12. Describe in your own words the conditions under which the sum of two integers will be 0.