

**Lesson Summary**

The rules for adding and subtracting integers apply to all rational numbers.

The sum of two rational numbers (e.g.,  $-1 + 4.3$ ) can be found on the number line by placing the tail of an arrow at  $-1$  and locating the head of the arrow 4.3 units to the right to arrive at the sum, which is 3.3.

To model the difference of two rational numbers on a number line (e.g.,  $-5.7 - 3$ ), first rewrite the difference as a sum,  $-5.7 + (-3)$ , and then follow the steps for locating a sum. Place a single arrow with its tail at  $-5.7$  and the head of the arrow 3 units to the left to arrive at  $-8.7$ .

**Problem Set**

Represent each of the following problems using both a number line diagram and an equation.

1. A bird that was perched atop a  $15\frac{1}{2}$ -foot tree dives down six feet to a branch below. How far above the ground is the bird's new location?
2. Mariah owed her grandfather \$2.25 but was recently able to pay him back \$1.50. How much does Mariah currently owe her grandfather?
3. Jake is hiking a trail that leads to the top of a canyon. The trail is 4.2 miles long, and Jake plans to stop for lunch after he completes 1.6 miles. How far from the top of the canyon will Jake be when he stops for lunch?
4. Sonji and her friend Rachel are competing in a running race. When Sonji is 0.4 miles from the finish line, she notices that her friend Rachel has fallen. If Sonji runs one-tenth of a mile back to help her friend, how far will she be from the finish line?
5. Mr. Henderson did not realize his checking account had a balance of \$200 when he used his debit card for a \$317.25 purchase. What is his checking account balance after the purchase?
6. If the temperature is  $-3^{\circ}\text{F}$  at 10:00 p.m., and the temperature falls four degrees overnight, what is the resulting temperature?