

**MODULE**  
**7**
**Solving Linear Equations**
**Module Quiz: B**

Use the table for 1–2.

Computer Repair Service	Cost
ABC Tech	\$75 service charge plus \$50 an hour
Tech Squad	\$25 service charge plus \$70 an hour

- At how many hours of service do the repair services cost the same? Choose the equation you could solve to find out.
  - $75x + 50 = 25x + 70$
  - $75x - 50 = 25x - 70$
  - $75 + 50x = 25 + 70x$
  - $(75 + 50)x = (25 + 70)x$
- Steven estimates how long his computer repairs will take. He discovers that ABC Tech and Tech Squad will charge the same amount. What is Steven's estimate of the repair time?
  - 0.4 h
  - 0.42 h
  - 2.5 h
  - 5 h
- Which of the following is an irrational number?
  - $\frac{4}{7}$
  - 61.2
  - 45
  - $\sqrt{17}$
- What is the solution to the equation below?
 
$$3 + 2.7x = 9.6 + 3.2x$$
  - $x = -25.2$
  - $x = -13.2$
  - $x = 13.2$
  - $x = 25.2$
- Mike weighs 200 pounds and plans to lose 1.5 pounds a week. Jeff weighs 180 pounds and plans to lose 0.5 pounds a week. When will Mike and Jeff weigh the same?
  - in 2 weeks
  - in 10 weeks
  - in 20 weeks
  - never
- Carla and Rob left a 20% tip after having lunch at a restaurant. The amount of the tip was \$6. Carla's lunch cost \$15. Which equation can you use to find  $x$ , the cost of Rob's lunch?
  - $0.2x + 15 = 6$
  - $0.2(x + 15) = 6$
  - $2(x + 15) = 6$
  - $0.2x = 15 + 6$
- Larry saves 15% of his annual salary for retirement. This year his salary was \$2,000 more than last year, and he saved \$3,300. What was his salary last year?
  - \$15,000
  - \$18,000
  - \$20,000
  - \$22,000
- For the equation  $2(4x + 10) = 8x + k$ , which value of  $k$  will create an equation with infinitely many solutions?
  - 4
  - 8
  - 20
  - 24
- Which of the following equations has no solution?
  - $2(6 + x) = 14 + 2x$
  - $5x - 10 = x + 20$
  - $2(4 + x) = 8 + 2x$
  - $10x + 5 = 3(5x + 7)$
- Which of the following is equivalent to 235,000,000,000?
  - $2.35 \times 10^{-9}$
  - $2.35 \times 10^{-10}$
  - $2.35 \times 10^{11}$
  - $2.35 \times 10^{12}$

## Solving Linear Equations

11. Write and solve an equation for the relationship described below.  
Four times a number plus three is the same as five plus the number.
- equation: \_\_\_\_\_
- solution: \_\_\_\_\_
12. A chess club has 500 members but is losing 30 members each year. A computer club has 150 members and is gaining 20 members per year. Write and solve an equation to find the number of years it will take for the two clubs to have the same number of members.
- equation: \_\_\_\_\_
- solution: \_\_\_\_\_
13. Is  $0.\overline{33}$  a rational or irrational number? Explain.
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
14. Solve the equation below.
- $$5 - \frac{1}{2}x = \frac{5}{8}x + 2$$
- \_\_\_\_\_
15. Two groups of hikers start at the same time and hike at the same average speed. Mark's group hikes for 2.5 hours. Sally's group hikes for 4.7 hours and covers another 7.7 miles. Write and solve an equation to find how fast the hikers are going.
- equation: \_\_\_\_\_
- solution: \_\_\_\_\_
16. Janice earns a 10% bonus based on her annual salary plus the number of sales she makes. She made 250 sales and earned a \$5,000 bonus last year. Write and solve an equation to find her salary last year.
- equation: \_\_\_\_\_
- solution: \_\_\_\_\_
17. Solve the equation below.
- $$\frac{1}{3}(12 + x) = -8(6 - x)$$
- \_\_\_\_\_
18. Tell whether the equation has one, zero, or infinitely many solutions.
- $$2\left(x - \frac{1}{2}\right) = 8 + 2x$$
- \_\_\_\_\_
19. Complete the equation so it has one solution of  $x = 2$ .
- $$4(5x - 4) = 4x + \underline{\hspace{2cm}}$$
20. Write 15,000,000 in scientific notation.
- \_\_\_\_\_