

7. If there are 0.82 U.S. dollars in one Canadian dollar, which is smaller—one U.S. dollar, or one Canadian dollar?

8. One number is 6 times a second number. Find the numbers if their difference is 102.

9. If you drive at an average speed of 65 miles per hour, how long will it take you to drive 530 miles? If you can bike a distance of 45 miles in three hours and 15 minutes, what is your average biking speed in miles per hour?

10. The length of a rectangle is 13 inches more than its width. If the area is 72 square inches, find the length and width of the rectangle.

11. Suppose that three-quarters of the freshmen live in a dorm. If two-thirds of the freshmen dorm residents are women, what percentage of the freshman class are women who live in the dorm?

12. Solve for x in the following equations:

- $3x - 5 = 9 + 7x$:

- $x^2 - 5 = 31$:

- $x^2 - x - 12 = 0$:

- $\frac{x-3}{5} = \frac{x}{2}$:

- $|x+3| = 10$:

13. Solve for x and y :

- $3x - 2y = 5$:

- $x + y = 7$:

14. Graph the line $5x - 2y = 6$. What is the y -intercept?

15. A warehouse may contain bicycles, tricycles, and cars, and altogether there are 18 wheels in the warehouse. How many bicycles, tricycles, and cars are there? Give as many answers as possible.

16. A playground is in the shape of a rectangle with a semicircle attached at the shorter end. Suppose also that the longer side of the rectangle is twice the length of the shorter side and that the radius of the semicircle is 12 feet. What is the perimeter and the area of the playground?

17. Assume that the ratio of undergraduate students to graduate students in an institution is 18:7. What percentage of the student body are graduate students?

18. Suppose that your annual tuition as a freshman was \$1,856 and each year tuition has increased 5%. If you are now in your senior year, what is your annual tuition this year?

19. The company you work for was doing poorly two years ago, and as a result everyone took a 10% cut in pay for the last year. The company is doing better now, and the CEO just promised to raise everyone's salary by 10% for next year. Does this mean that your salary next year will be the same as it was two years ago? Explain.

20. Determine any errors made in the work shown below, and then show the mistake made, if found.

$$\begin{array}{ll} \frac{3(-5) + x(3)}{3} = 1 & \text{cancel 3} \\ -5 + 3x = 1 & \text{add +5 to both sides} \\ 3x = 6 & \text{subtract 3 from both sides} \\ x = 3 & \end{array}$$

$$\begin{array}{ll} 2\left(\frac{x+3}{5}\right) = x & \text{add -3 to both sides} \\ \frac{2(x)}{5} = x + -3 & \text{multiply by 5} \\ 2x = 5x - 15 & \text{subtract 2} \\ x = 5x - 17 & \text{subtract } 5x \\ -4x = -17 & \text{subtract -4} \\ x = -21 & \end{array}$$