

Name _____

Let x represent the number. Use the given conditions to write an equation. Solve the equation and find the number.

- 1) Four times a number added to 9 times the number equals 65. Find the number.

- 2) When 2 times a number is subtracted from 7 times the number, the result is 40. Find the number.

- 3) If 5 times a number is added to -4 , the result is equal to 9 times the number. Find the number.

- 4) Three-fourths of a number is $\frac{1}{2}$. Find the number in lowest terms.

- 5) The sum of four times a number and 5 is equal to the difference of twice the number and 1. Find the number.

- 6) The sum of four times a number and 1 is equal to the difference of twice the number and 4. Find the number.

- 7) The sum of four times a number and 2 is equal to the difference of twice the number and 9. Find the number.

- 8) Three-fourths of a number is $\frac{3}{16}$. Find the number in lowest terms.

- 9) Three-fourths of a number is $\frac{7}{8}$. Find the number in lowest terms.

- 10) If 4 times a number is added to -7 , the result is equal to 11 times the number. Find the number.

- 11) If 3 times a number is added to -8 , the result is equal to 11 times the number. Find the number.

- 12) When 3 times a number is subtracted from 7 times the number, the result is 40. Find the number.

Solve the problem.

- 13) The president of a certain university makes three times as much money as one of the department heads. If the total of their salaries is \$170,000, find each worker's salary.
- 14) The president of a certain university makes three times as much money as one of the department heads. If the total of their salaries is \$290,000, find each worker's salary.
- 15) 30 marbles are to be divided into three bags so that the second bag has three times as many marbles as the first bag and the third bag has twice as many as the first bag. If x is the number of marbles in the first bag, find the number of marbles in each bag.
- 16) A promotional deal for long distance phone service charges a \$15 basic fee plus \$0.05 per minute for all calls. If Joe's phone bill was \$70 under this promotional deal, how many minutes of phone calls did he make? Round to the nearest integer, if necessary.
- 17) A promotional deal for long distance phone service charges a \$15 basic fee plus \$0.05 per minute for all calls. If Joe's phone bill was \$68 under this promotional deal, how many minutes of phone calls did he make? Round to the nearest integer, if necessary.
- 18) Two angles are complementary if their sum is 90° . If the measure of the first angle is x° , and the measure of the second angle is $(3x - 2)^\circ$, find the measure of each angle.
- 19) Rooms in Dormitory A each have 116 square feet of floor space. These rooms have twice as much floor space as each room in Dormitory B. About how much floor space does a room in Dormitory B have?
- 20) An isosceles triangle contains two angles of the same measure. If the measure of the third angle is 51° less than the measure of either of the other two identical angles, find the measure of one of the identical angles. (Hint: The sum of the angles of a triangle is 180° .)
- 21) There are 10 more sophomores than juniors in an algebra class. If there are 54 students in this class, find the number of sophomores and the number of juniors in the class.
- 22) A car rental agency advertised renting a luxury, full-size car for \$39.95 per day and \$0.49 per mile. If you rent this car for 5 days, how many whole miles can you drive if you only have \$200 to spend?
- 23) A 7-ft. board is cut into 2 pieces so that one piece is 3 feet longer than 3 times the shorter piece. If the shorter piece is x feet long, find the lengths of both pieces.

- 24) A 12-ft. board is cut into 2 pieces so that one piece is 8 feet longer than 3 times the shorter piece. If the shorter piece is x feet long, find the lengths of both pieces.
- 25) A car rental agency advertised renting a luxury, full-size car for \$29.95 per day and \$0.49 per mile. If you rent this car for 2 days, how many whole miles can you drive if you only have \$200 to spend?
- 26) There are 16 more sophomores than juniors in an algebra class. If there are 58 students in this class, find the number of sophomores and the number of juniors in the class.
- 27) An isosceles triangle contains two angles of the same measure. If the measure of the third angle is 30° less than the measure of either of the other two identical angles, find the measure of one of the identical angles. (Hint: The sum of the angles of a triangle is 180° .)
- 28) Rooms in Dormitory A each have 130 square feet of floor space. These rooms have twice as much floor space as each room in Dormitory B. About how much floor space does a room in Dormitory B have?
- 29) 30 marbles are to be divided into three bags so that the second bag has three times as many marbles as the first bag and the third bag has twice as many as the first bag. If x is the number of marbles in the first bag, find the number of marbles in each bag.
- 30) Two angles are complementary if their sum is 90° . If the measure of the first angle is x° , and the measure of the second angle is $(3x - 2)^\circ$, find the measure of each angle.
- 31) A car rental agency advertised renting a luxury, full-size car for \$34.95 per day and \$0.29 per mile. If you rent this car for 3 days, how many whole miles can you drive if you only have \$200 to spend?
- 32) A promotional deal for long distance phone service charges a \$15 basic fee plus \$0.05 per minute for all calls. If Joe's phone bill was \$58 under this promotional deal, how many minutes of phone calls did he make? Round to the nearest integer, if necessary.
- 33) There are 16 more sophomores than juniors in an algebra class. If there are 98 students in this class, find the number of sophomores and the number of juniors in the class.

Answer Key

Testname: 02.5V02B

- 1) $4x + 9x = 65$; 5
- 2) $7x - 2x = 40$; 8
- 3) $5x + (-4) = 9x$; -1
- 4) $\frac{3}{4}x = \frac{1}{2}$; $\frac{2}{3}$
- 5) $4x + 5 = 2x - 1$; -3
- 6) $4x + 1 = 2x - 4$; $-\frac{5}{2}$
- 7) $4x + 2 = 2x - 9$; $-\frac{11}{2}$
- 8) $\frac{3}{4}x = \frac{3}{16}$; $\frac{1}{4}$
- 9) $\frac{3}{4}x = \frac{7}{8}$; $\frac{7}{6}$
- 10) $4x + (-7) = 11x$; -1
- 11) $3x + (-8) = 11x$; -1
- 12) $7x - 3x = 40$; 10
- 13) president's salary = \$127,500; department head's salary = \$42,500
- 14) president's salary = \$217,500; department head's salary = \$72,500
- 15) 1st bag = 5 marbles; 2nd bag = 15 marbles; 3rd bag = 10 marbles
- 16) 1100 minutes
- 17) 1060 minutes
- 18) 1st angle = 23° ; 2nd angle = 67°
- 19) 58 sq. feet
- 20) 77°
- 21) 32 sophomores; 22 juniors
- 22) 0 miles
- 23) shorter piece: 1 ft.; longer piece: 6 ft.
- 24) shorter piece: 1 ft.; longer piece: 11 ft.
- 25) 285 miles
- 26) 37 sophomores; 21 juniors
- 27) 70°
- 28) 65 sq. feet
- 29) 1st bag = 5 marbles; 2nd bag = 15 marbles; 3rd bag = 10 marbles
- 30) 1st angle = 23° ; 2nd angle = 67°
- 31) 328 miles
- 32) 860 minutes
- 33) 57 sophomores; 41 juniors