

Name _____

Determine whether the equation in one variable is linear.

1) $x - 9 = 5$

2) $x^2 - 3 = 3$

3) $\frac{2}{x} = 8$

4) $3x + 19 = 2$

5) $\frac{x}{10} + 7 = 4$

6) $\sqrt{2x} + \pi = 0.\bar{6}$

7) $4\sqrt{x} - 11 = 0$

8) $67.6x = 6.0$

9) $7(x - 3) = 0$

10) $|x + 9| = 14$

11) $|13x| - 19 = 17$

12) $3x = 4x^3$

Solve the equation.

13) $a - 10 = -9$

14) $x + 3 = -14$

15) $x + 12 = 3$

16) $-19 = b - 10$

17) $-11 = b - 15$

$$18) -3 + z = 12$$

$$27) 6y = 5y - 8.6$$

$$19) \frac{1}{4} + x = 6$$

$$28) 12x - 6 = 8x + 30$$

$$20) x + \frac{1}{8} = \frac{7}{8}$$

$$29) 15x - 2 - 6x = 43$$

$$21) x + \frac{1}{4} = -\frac{3}{8}$$

$$30) 3(y + 7) = 4(y - 3)$$

$$31) 5(2z - 5) = 9(z + 4)$$

$$22) x - \frac{2}{5} = \frac{2}{15}$$

$$32) 10y = 3y + 6 + 6y$$

$$23) -\frac{1}{6} + z = \frac{3}{8}$$

$$33) -5a + 2 + 6a = 15 - 21$$

$$24) -4.1 + x = 20.4$$

$$34) -6b + 5 + 4b = -3b + 10$$

$$25) -23.3 - a = 19.1$$

$$35) -8.8 + 3x - 6.6 + 2x - 2.8 = 5.6 + 6x + 1.3$$

$$26) 5 + 2p = 3p$$

Use the given information to write an equation. Let x represent the number described in the exercise. Then solve the equation and find the number.

36) The sum of a number and forty-four is fifty.

37) Twenty-nine increased by a number equals fifty-two.

38) If 255 is subtracted from a number, the result is 443.

39) If 285 is added to a number, the result is 647.

Solve.

40) The cost of having a car towed is given by the formula $C = 2x + 80$, where C is in dollars and x is the number of miles the car is towed. Find the cost of having a car towed 15 miles.

41) The cost of having a car towed is given by the formula $C = 3x + 70$, where C is in dollars and x is the number of miles the car is towed. Find the cost of having a car towed 14 miles.

42) The monthly cost of a certain long distance service is given by the formula $C = 0.05t + 4.95$ where C is in dollars and t is the amount of time in minutes called in a month. Find the cost of calling long distance for 130 minutes in a month.

43) The monthly cost of a certain long distance service is given by the formula $C = 0.06t + 9.95$ where C is in dollars and t is the amount of time in minutes called in a month. Find the cost of calling long distance for 90 minutes in a month.

44) The amount of water in a leaky bucket is given by the formula $f = 121 - 9t$, where f is in ounces and t is in minutes. Find the amount of water in the bucket after 5 minutes.

45) The amount of water in a leaky bucket is given by the formula $f = 112 - 11t$, where f is in ounces and t is in minutes. Find the amount of water in the bucket after 4 minutes.

46) The altitude above sea level of an airplane just after taking off from an airport on a high plateau is given by the formula $h = 1000t + 3735$, where h is in feet and t is the time in minutes since take-off. Find the altitude of the airplane after 5 minutes.

47) The altitude above sea level of an airplane just after taking off from an airport on a high plateau is given by the formula $h = 800t + 3064$, where h is in feet and t is the time in minutes since take-off. Find the altitude of the airplane after 5 minutes.

Answer Key

Testname: 02.1V01A

- 1) linear
- 2) not linear
- 3) not linear
- 4) linear
- 5) linear
- 6) linear
- 7) not linear
- 8) linear
- 9) linear
- 10) not linear
- 11) not linear
- 12) not linear
- 13) {1}
- 14) {-17}
- 15) {-9}
- 16) {-9}
- 17) {4}
- 18) {15}
- 19) $\left\{\frac{23}{4}\right\}$
- 20) $\left\{\frac{3}{4}\right\}$
- 21) $\left\{-\frac{5}{8}\right\}$
- 22) $\left\{\frac{8}{15}\right\}$
- 23) $\left\{\frac{13}{24}\right\}$
- 24) {24.5}
- 25) {-42.4}
- 26) {5}
- 27) {-8.6}
- 28) {9}
- 29) {5}
- 30) {33}
- 31) {61}
- 32) {6}
- 33) {-8}
- 34) {5}
- 35) {-25.1}
- 36) $x + 44 = 50$; 6
- 37) $29 + x = 52$; 23
- 38) $x - 255 = 443$; 698
- 39) $285 + x = 647$; 362
- 40) \$110
- 41) \$112
- 42) \$11.45
- 43) \$15.35
- 44) 76 oz

Answer Key

Testname: 02.1V01A

45) 68 oz

46) 8735 ft

47) 7064 ft