Math 084 W2010 Quiz 4 Preparation sections 2.1 to 2.3 v01
Dressler

Name_____

Determine whether the equation in one variable is linear.

1) $4\sqrt{x} - 11 = 0$

2) $x - 7 = 12$

3) $\sqrt{2}x + \pi = 0.\overline{3}$

4) $67.6x = 6.0$

5) $|13x| - 19 = 17$

6) $x - 9 = 5$

7) $3x = 4x^3$

Solve.

8) The cost of having a car towed is given by the formula $C = 3x + 40$, where C is in dollars and x is the number of miles the car is towed. Find the cost of having a car towed 11 miles.

9) 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.

10) 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.

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12) 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.

13) The amount of water in a leaky bucket is given by the formula $f = 128 - 10t$, where f is in ounces and t is in minutes. Find the amount of water in the bucket after 7 minutes.

14) 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.

15) The altitude above sea level of an airplane just after taking off from an airport on a high plateau is given by the formula $h = 700t + 3150$, where h is in feet and t is the time in minutes since take–off. Find the altitude of the airplane after 8 minutes.

Solve the problem.

16) The time it takes to travel a given distance at constant speed is given by the formula $t = \frac{d}{r}$, where t is the time, d is the distance, and r is the rate of travel. At 40 miles per hour, what distance can be traveled in 2 hours?

17) The time it takes to travel a given distance at constant speed is given by the formula $t = \frac{d}{r}$, where t is the time, d is the distance, and r is the rate of travel. At 50 miles per hour, what distance can be traveled in 3 hours?

18) The time it takes to travel a given distance at constant speed is given by the formula $t = \frac{d}{r}$, where t is the time, d is the distance, and r is the rate of travel. At 0.5 mile per minute, what distance can be traveled in 30 minutes?

19) To convert meters to feet, you can use the formula $f = \frac{m}{0.3038}$, where f is the distance in feet and m is the distance in meters. How many meters (to the nearest tenth) is 8 feet?

20) To convert meters to feet, you can use the formula $f = \frac{m}{0.3038}$, where f is the distance in feet and m is the distance in meters. How many meters (to the nearest tenth) is 5 feet?

21) Power is the time rate of doing work and is commonly measured in watts. Power is given by the formula $P = \frac{W}{t}$, where P is power, W is work (in joules), and t is time in seconds. If 700 watts of power are used in 4 seconds, how much work (in joules) was done?

22) The speed of a ball dropped from a tower is given by the formula $f = 32t$ where f is in feet per second and t is the number of seconds since the ball was dropped. Find the speed of the ball after 11 seconds.

23) The formula $C = 522x + 133$ models the data for the cost to produce x units of a product, where C is given in dollars. How many units can be produced for a cost of $104,533?

24) The formula $C = 566x + 137$ models the data for the cost to produce x units of a product, where C is given in dollars. How many units can be produced for a cost of $283,137?

25) The formula $C = 429x + 104$ models the data for the cost to produce x units of a product, where C is given in dollars. How many units can be produced for a cost of $257,504?

26) The weekly production cost C of manufacturing x calendars is given by $C = 25 + 3x$, where the variable C is in dollars. What is the cost of producing 279 calendars?

27) The weekly production cost C of manufacturing x calendars is given by $C = 40 + 3x$, where the variable C is in dollars. What is the cost of producing 235 calendars?

28) The weekly production cost C of manufacturing x calendars is given by $C = 29 + 4x$, where the variable C is in dollars. What is the cost of producing 207 calendars?

Solve the equation. Use words or set notation to identify equations that have no solution, or equations that are true for all real numbers.

29) $2(x + 4) = 2x + 8$

30) $5(x + 3) = 5x - 30$

31) $-9x + 8 + 7x = -2x + 13$

32) $9x + 3 + 8x + 2 = 5x + 12x + 2$

33) $2(x + 5) + 34 = 5x - 3(x + 2)$

34) $12(x + 2) = 2(6x - 4) + 32$

35) $8(x + 1) = 27x + 27 - 19x - 19$

36) $12x + 14(x + 1) = 26(x + 1) - 12$

37) $4(x + 5) + 4 = 4x + 2$

38) $4(4x - 4) + 7 = 11x - 4$

39) $\frac{x}{6} - 9 = \frac{x}{6}$

40) $9x + 10(x + 1) = 19(x + 1) - 9$

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.

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

42) Four times a number added to 9 times the number equals 39. Find the number.

43) When 5 times a number is subtracted from 7 times the number, the result is 18. Find the number.

44) If 3 times a number is added to –7, the result is equal to 10 times the number. Find the number.

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

46) Three–fourths of a number is $\frac{5}{6}$. Find the number in lowest terms.

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

48) The sum of four times a number and 1 is equal to the difference of twice the number and 3. Find the number.

49) The sum of four times a number and 3 is equal to the difference of twice the number and 8. Find the number.

1) not linear
2) linear
3) linear
4) linear
5) not linear
6) linear
7) not linear
8) $73
9) $110
10) $11.45
11) $13.45
12) 76 oz
13) 58 oz
14) 8735 ft
15) 8750 ft
16) 80 mi
17) 150 mi
18) 15 mi
19) 2.4 m
20) 1.5 m
21) 2800 joules
22) 352 ft/sec
23) 200 units
24) 500 units
25) 600 units
26) $862.00
27) $745.00
28) $857.00
29) {x|x is a real number}
30) ∅
31) ∅
32) ∅
33) ∅
34) {x|x is a real number}
35) {x|x is a real number}
36) {x|x is a real number}
37) ∅
38) {1}
39) ∅
40) {x|x is a real number}
41) $\frac{3}{4}x = \frac{3}{16}$; $\frac{1}{4}$
42) $4x + 9x = 39$; 3
43) $7x - 5x = 18$; 9
44) $3x + (-7) = 10x$; -1
45) $3x + (-8) = 11x$; -1
46) $\frac{3}{4}x = \frac{5}{6}$; $\frac{10}{9}$

47) $\frac{3}{4}x = \frac{7}{8}$; $\frac{7}{6}$

48) $4x + 1 = 2x - 3$; -2

49) $4x + 3 = 2x - 8$; $-\frac{11}{2}$