

NAME: _____ Score _____/100
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SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION

Circle T or F, whichever is correct. 2 pts. each for 1 – 27. 5 pts. each for 28 – 36.

1. T F My garden is 24 ft. long and 16 ft wide, its perimeter is $(24)(16)$ ft.
2. T F If 3 is a solution of a particular equation and 5 is not, then that equation is a contradiction .
3. T F If an equation in one variable is an identity, then 7 is a solution of that equation.
4. T F Every equation is a linear equation.
5. T F $5x + 7$ is a linear equation.
6. T F The exact volume of a cone of height 8 and radius 3 is a rational number.
7. T F The exact area of the right triangle with legs 5 and 12 and hypotenuse 13 is 30.
8. T F If both sides of an equation are multiplied by the same algebraic expression, the resulting equation is equivalent to the original equation.
9. T F Every linear equation in one variable has exactly one solution.
10. T F 2 is a solution of the equation $3x - 5 = 1$.

Fill in each of the blanks to make the statements true.

11. An _____ is a mathematical statement which contains an = symbol.
12. A number (or numbers) that makes an equation true when substituted for the variable (or variables) is called a _____ of the equation.
13. The graph of an equation consists of all the points, and only those points, whose coordinates are _____ of the equation.
14. Two equations are _____ if they have the same solution sets.
15. If any expression is added to both sides of an equation the resulting equation is _____ to the original equation.
16. If both sides of an equation are multiplied by the same non-zero real number, the resulting equation is _____ to the original equation.
17. The process to solve a linear equation in one variable is to generate a sequence of equations each _____ to the previous equation until a _____ equation is obtained.
18. The formula for the volume of a rectangular solid of length a, width b, and height c is _____.
19. The formula for the area of a triangle with base b and height h is _____.
20. The formula for the area of a circle with radius r is _____.

21. The formula for the volume of a cylinder with radius r and height h is _____.
22. The formula for the distance between two points (x_1, y_1) and (x_2, y_2) is _____.
23. A linear equation in one variable is an equation that can be written in the form _____ where a and b are real numbers with a not zero.
24. What is the solution set for the equation $2x + 1 = 2x + 3$?
25. Which of the following are linear equations in one variable? Circle those that are.
 $3x + 1 = 9$ $2x = 5$ $-7x + 0 = 5x + 1$ $2x^2 + 3x^3 + x - 9 = 0$
26. Which of the following are conditional equations? Circle those that are.
 $x^2 = xx$ $x + 1 = 1$ $x^2 = -8$ $15x = \pi$ $3x = x + x + x + 1$
27. Present an argument which concludes that the equation $5x + 1 = 11$ is a conditional equation?

Show your work on exercises 28 – 36 inclusive.

28. Solve $3x = 17$.

29. Solve $\frac{3}{4}x + 1 = 11$.

30. Solve $N = 3st^4 - 5sm$ for m . Simplify your answer as much as possible.

31. The cost of a new fax machine, including 8% tax, is \$464.40. What is its pretax retail price?

32. Calculate the exact distance between the points (3, -2) and (5, 1).

33. 125 is what percent of 70? Be sure to write a conclusion after your computations.

34. Solve the equation $7x - 2 = -3x + 9$.

35. Calculate the exact area of a circle of radius 7.

36. A serving of cashews contains 14 grams of fat, 7 grams of carbohydrate, and 6 grams of protein. Use the formula $C = 4h + 9f + 4p$ which relates calories (C), carbohydrates (h), fat (f), and protein (p) to determine how many calories are in a serving of cashews?