Name: _____ Period: _____ Date: _____

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1. **Write a verbal expression for the algebraic expression given below.**

$$3x^2 - 2x$$

2. **Evaluate the expression for the given variable.**

$\frac{(9-x)^2+4}{5}$ when $x = 3$

3. **Simplify the expression $6 + 3[2x - 4(3x - 2)]$.**

4. **Find the solution of the equation given below.**

$$7 + (-5x) = -33$$

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5. **Find the solution of $\frac{f}{2} = -162$.**

6. **Find the solution of $18(x + 1) = -54$.**

7. **Find the value of y for the value of x given.**

   $3y - 9x = 24 \quad ; \quad x = 3$

8. **The sale price of a car is depreciated by 15% after one year. If the initial price of the car is 12,000$, what is the price of the car after one year?**

9. **Graph the inequality $a \leq -10$.**

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10. Write and solve the inequality.

The sum of a number x and -7 is less than or equal to 18.

11. Solve the inequality $-\frac{y}{7} \leq -7$.

12. Draw a Venn diagram to represent the union and intersection of these sets.

$\boldsymbol{X} = \{\mathbf{8}, \mathbf{9}, \mathbf{11}, \mathbf{13}\}$, $\boldsymbol{Y} = \{\mathbf{7}, \mathbf{8}, \mathbf{9}, \mathbf{10}\}$ and $\boldsymbol{Z} = \{-\mathbf{5}, \mathbf{5}, \mathbf{7}, \mathbf{9}, \mathbf{11}\}$. Find $\boldsymbol{X} \cap \boldsymbol{Y} \cap \boldsymbol{Z}$.

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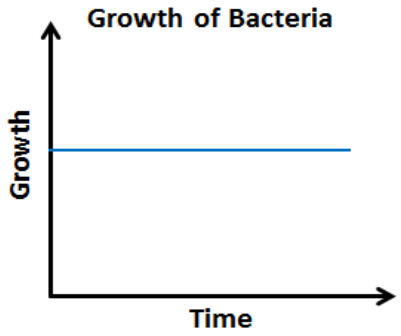
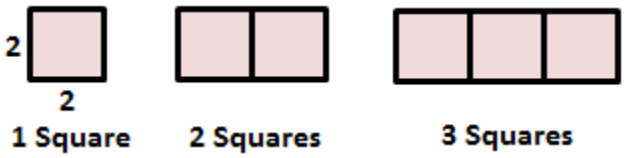
13. What variables are represented in the graph? Also tell the relationship between the variables.



14. For the diagram given below, find the relationship between the number of shapes and the perimeter of the figure they form. Then represent this relationship using words and an equation.



15. The set of ordered pairs represents a function. Write a rule representing the function.

(-1,2), (0,1), (1,2), (2,5), (3,10)

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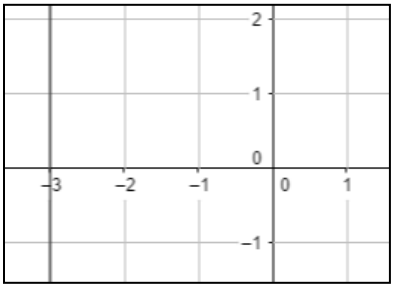
16. Find the n^{th} term in the arithmetic sequence given.

9^{th} term in -11, -1, 9, 19, …

17. Find the slope of the line given below.



18. Assume that y varies directly with x. Write an equation relating x and y. Also find the value of y when is 18.

$y = 6$ when $x = 18$

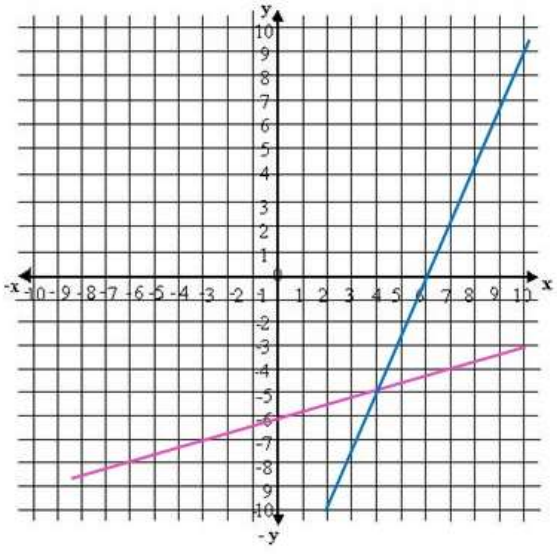
19. Write an equation of a line with the given slope m and y-intercept b.

$$m = -0.01, b = -100$$

20. Write an equation in slope-intercept form of the line that passes through the given point and is perpendicular to the graph of the given equation.

$$(2, 1)\ ;\ y = 2x + 1$$

21. Identify from the graph the solution of the system and determine if it is an independent, Inconsistent or Dependent system.



22. Find the solution of the following system of equation by substitution and determine if it is an independent, inconsistent or dependent system.

$x = 3y - 1$

$3x - y = 2$

23. Find the solution of the following systems by elimination and determine if it is an independent, inconsistent or dependent system.

$2x + 4y = -6$

$x = 1 - 2y$

24. Express the following interval as a set.

$(2\ ,10)$

25. Simplify:

$\boldsymbol{2ab^{-1}c} =$ _____

26. Simplify:

$\boldsymbol{4a^3 \cdot 2a^{-1}} =$ _____

27. Simplify:

$\sqrt[6]{\boldsymbol{x^2}} =$ _____

28. Find the sum of the first 6 terms of a sequence with the first element of 6 and a common ratio of 3/2.

29. Simplify $\{-4x-[5x-2-(3x+3)-6]+10\}+2$.

30. Factor the following polynomial.

$$30vuz-60u^2z-100uz$$

31. Simplify $(x+4)(2x+2)$.

32. Factorize $x^2-2nx+2ax-4an$ by grouping.

33. Identify the domain and range of the function $y=10x^2+0.5$.

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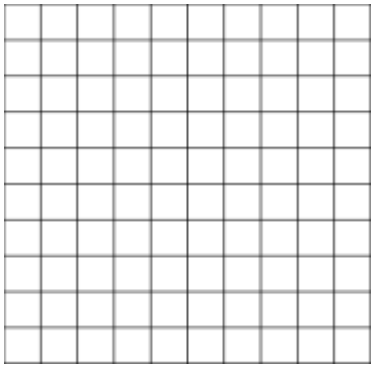
34. Graph the function using the vertex and axis of symmetry.

$$f(x) = -\frac{1}{2}x^2 + 8x - 2$$



35. Solve the equation $(8t + 4)(3t + 6) = 0$

36. Solve the quadratic equation using the quadratic formula.

$x^2 = 3x + 2$

37. Andy walked 10 miles north and 5 miles west. How far is he from his starting point?

38. Simplify the following expression.

$\left(\sqrt[5]{-243}\right)^2$

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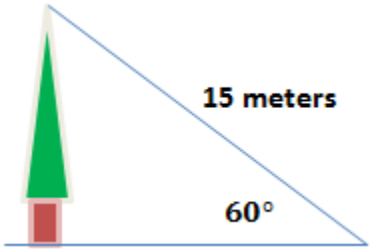
39. Simplify $\sqrt{ab}\left(\sqrt{ab^2}-\sqrt{ab}\right)$.

40. A damaged tree is supported by a guy wire 15 meters long. The wire makes an angle of 60° with the ground. Calculate the height at which the guy wire is attached to the tree.



41. Simplify the following.

$$\frac{x^2+3x-4}{x^2-16}$$

42. Simplify:

$$\frac{3d+6}{d}\times\frac{d}{3d}$$

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43. Simplify:

$$\frac{5g-20}{10g} \div \frac{7g-28}{14g^2}$$

44. Simplify:

$$\frac{3s+7}{s^2-9} - \frac{s+5}{s^2-9}$$

45. Solve for the variable a.

$$\frac{a}{12} - \frac{a}{6} = 1$$

46. The time required for two pipes to drain a pool is 10 hours. How long will it take for 5 pipes to drain the same pool?

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47. Find the y- intercept of $f(x)=\dfrac{4x-2}{x+2}$**.**

48. The following are scores of 13 students in Algebra quiz: 3, 20, 18, 17, 6, 14, 11, 11, 15, 27, 23, 25, and 28. Find the Median and the Mode.

49. A Super market wants to conduct a survey about costumer service; the number of visitor of the super market per week is about 1000 visitor. Find the sample of the population at 5% margin of error.

50. There are 10 males and 8 females. How many 5-member committees can be formed if a committee is composed of all male members?