Name: _____ Period: _____ Date: _____

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

   Three times the quantity eight plus x

   _____

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

   $\frac{9}{10} \cdot y - \frac{3}{10}$ when $y = \frac{1}{2}$

3. **Simplify the expression $\frac{42t-14u}{7}$.**

4. **Use a table to find two consecutive integers between which the solution lies for the given equation.**

   $14x - 66 = 40$

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5. Find the sum $-\frac{16}{40}+\left(-\frac{13}{20}\right)$.

6. Simplify the expression $5x - 3[7 - 2(6x - 7) - 3x]$.

7. Find the solution of $-3g = 42$.

8. Find the solution of $7(f - 9) = 63$.

9. Find the solution of $\frac{234z}{500} - 3z - 1 = -1 - 3z$.

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10. Find the solution of $-3z - 1 = +2z - 1$.

11. Solve the proportion $\frac{y}{3} = \frac{5}{4}$.

12. A dining table with a set of chairs that costs 250$ are on sale for 30% of the regular price. What is the sales price of the dining table and the set of chairs?

13. Graph the inequality $m > 10$.

14. Solve the inequality $7y \leq 6y - 2$.

15. Write and solve the inequality.

Negative six times a number is at least 14.

16. Suppose $U = \{x \mid x$ is a real number, $x < -3\}$ is the universal set and A=$\{x \mid x$ is a real number, $x < -10\}$. What is A'?

17. Solve the equation $|x + 6| + 3 = 16$.

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

$A = \{2, 7, 12, 17\}$ and $B = \{x|x$ is a positive whole number less than 8$\}$. Find $A \cap B$.

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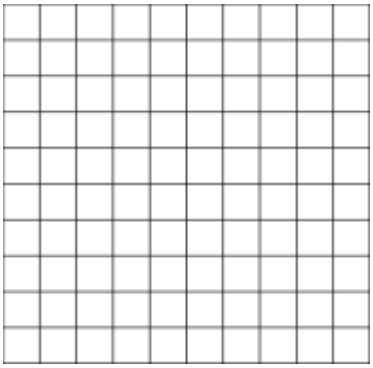
19. Sketch a graph representing the situation given below.

Harry's time in office starting from morning till the evening.



20. For the table given below, determine whether the relationship is a function. If yes, then represent the relation using words and ordered pairs.

y	0	1	2	3	4
z	6	7	8	9	10

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

(-1,1), (0,2), (1,3), (2,10), (3,29)

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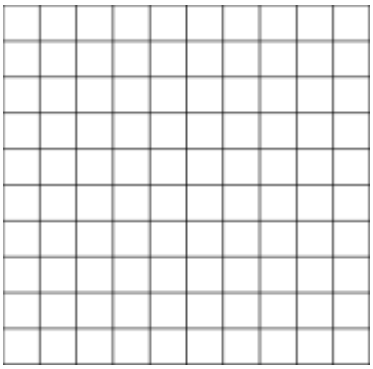
22. Graph the function represented by the data in the table. Tell whether the function is linear or non-linear.

x	*y*
0	**1**
1	**2**
2	**5**
3	**10**

Graph:



23. Write a function rule representing the situation given below.

The cost *c* of the membership of a club is 30$ for sign up and 15$ per week *w* to be a member.

_____

24. Describe the pattern in the sequence given below. Also find the next three terms in the sequence.

1, 3, 9, 27, 54, …

25. Find the slope of the line passing through the points (1,0) and (-4,2).

26. Determine whether the given below equation represents a direct variation or not. If it does, find the constant of variation.

$$3y - 7 = 2x - 7$$

27. Write an equation in slope-intercept form of the line that passes through the points $(12, 10) and\ (16, 8)$.

28. Write an equation in slope-intercept form of the line passing through $(3, 1)$ and $(4, 3)$.

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

$$(-1, 6)\ ;\ y = 9x - 5$$

30. Write the equation represented by the graph shown below.

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31. Find the solution of the following system of equations by graphing.

$$2x + y = 6$$

$$x + y = 5$$

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

$$7x + 2y = 16$$

$$-21x - 6y = 24$$

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

$$2x + y = 3$$

$$5x - 2y = 4$$

34. The sum of two numbers is 13 and their difference is 5. Find the numbers.

35. Solve the following inequality and graph it:

$$2x + 1 \leq 7$$

36. Solve the following inequalities and graph its solution:

$$\begin{cases} y \geq 2x + 1 \\ y \geq -x + 3 \end{cases}$$

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37. Simplify:

$2x + (5y)^0 =$ _____

38. Simplify:

$2x^2y \cdot 3x =$ _____

39. Simplify:

$\frac{4x^5y}{2y^3} =$ _____

40. Simplify:

$\sqrt{\frac{2x^3}{4x^6}} =$ _____

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41. Draw the graph of $y = 2^{x+3}$.

42. Suppose you have the following: 2$ in the first day, 4$ in the second day, 8$ in the third day, etc. each day saving double of what you save the preceding day. How many dollar you would have for 15 days?

43. Add $xy - x^2y + xy^2;\ -xy^2 - 5xy - 6x + 4x^2y$.

44. Find the product of the following polynomials.

$6bc(2a + b - 2c)$

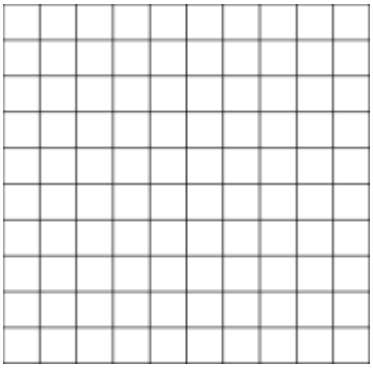
45. Simplify $(x + y)(3x + 4y)$**.**

46. Factorize $4y^2 + 12y - 40$**.**

47. Factorize $x^2 + 12x + 36$**.**

48. Factorize $y^2 - 3ny + 2ay - 6an$ **by grouping.**

49. Graph the quadratic function $y = -1.5x^2$.



50. Identify the axis of symmetry and vertex of the graph of the quadratic function $f(x) = x^2 - 8x$.

51. Find the solution of the equation $4b^2 - 36 = 0$ by finding the square roots or mention if the equation has no solution.

52. Solve the equation $x^2 + 11x + 28 = 0$ by factoring.

53. Solve the quadratic equation using the quadratic formula.

$x^2 + 9x - 13 = 0$

54. Solve the system of equation algebraically.

$y = x^2 - 3x - 27 \quad ; \quad y = x - 6$

55. A rectangle has a width of 10 and a length of 22. How long is the diagonal of the rectangle?

56. Simplify the following expression. Assume that all variables represent positive real numbers.

$$\sqrt[4]{\frac{112x^5}{y^4}}$$

57. Simplify $(x+\sqrt{x})(\sqrt{x}-1)$**.**

58. Solve $\sqrt{10-x}=\sqrt{x-1}$

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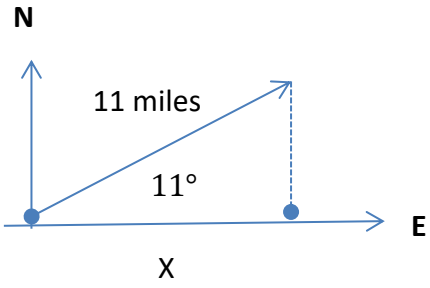
59. Andy walked 10 miles at an angle of $11°$ north of due east. To the nearest tenth of a mile, how far east, *x*, is Andy from his starting point?



60. Find the value of α that makes the statement true.

$$\boldsymbol{\sin\alpha = \cos(3\alpha + 54°)}$$

61. Simplify the following.

$$\frac{5x^2y + 5x^2z}{15xy + 15xz}$$

62. Simplify:

$$\frac{5x - 5y}{xy^2} \times \frac{x^2y}{2x - 2y}$$

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63. Simplify:

$$\frac{4a+4}{a^2-25} \div \frac{20}{a^2-5a}$$

64. Simplify:

$$\frac{4}{5z} + \frac{1}{2z}$$

65. Solve for the variable x.

$$\frac{1}{x} + \frac{1}{16} = \frac{1}{10}$$

66. How long will it take a car to travel a certain distance at 80 km/ h if the same distance can be traveled in 6 hours at 40km/h.

67. Find the vertical and horizontal asymptote of $f(x) = \dfrac{4x-2}{x+2}$**.**

68. 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 Mean.

69. 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 1% margin of error.

70. There are 10 males and 8 females. How many 5-member committees can be formed if a committee is composed of 2 males and 3 females?