Geometry
Summer Assignment

Welcome to **Geometry**! This review assignment is designed to refresh your Algebra 1 skills. It includes information that was taught in previous courses and will be used throughout the upcoming school year. As you prepare, you may need to seek help by accessing the suggested resources or links provided.

<p style="text-align:center">**IMPORTANT: Read this page first...**</p>

INSTRUCTIONS

1. Complete all sections and problems in this packet. You must do all work without any help from another person.
2. Show all work that leads you to each solution on the attached answer sheet.
3. Do all problems WITHOUT a calculator.
4. You may use your notes from previous mathematics courses to help you.

PACING

You should pace yourself to work on this assignment at least a few hours a week leading up to the start of school in September. If you complete the packet at the end of June or early in July, it will not be very helpful in preparation for the start of school. Also, it will not be helpful if you try to complete the entire packet a night or two before school starts. Pace yourself by setting a calendar reminder and scheduling blocks of time to focus on this assignment as you prepare to return to school in September.

GRADING

- On the first day of school, your math teacher will check for full completion of this Summer Assignment and the supporting work for your responses (no work = no credit). This part will be weighted at 50% - this is the grade that represents your effort and following of directions.
- Your teacher will then review the assignment and provide remediation as needed.
- Upon completion of your teacher's review, you will be given an assessment (a "test") based on the topics covered in this assignment. This assessment will be weighted at 50% - this is the grade that represents your mastery of the skills.
- The two weighted scores combined will count as one Project grade for the 1st trimester.
- Acceptance of late assignments will be limited and subject to point deductions.

<p style="text-align:center">**We are looking forward to meeting you in September.
Go Bulldogs!**</p>

ARE YOU STUCK???? Below is a quick "how-to" guide

Number Sense & Operations Finding Percent of
1. Change the percent to a decimal
2. Multiply the total amount by the decimal

Changing Fractions to Decimals
1. Divide the numerator by the denominator
2. Round to the nearest hundredth if needed

Changing Fractions to Percent
1. Divide the numerator by the denominator
2. Round to the nearest hundredth
3. Drop the decimal point
4. Add a percent sign

Solving Multi-Step Operations -- PEMDAS
1. Complete all computation inside the parenthesis, brackets, or absolute value
2. Carry out all exponents
3. Multiply or divide, from left to right
4. Add or subtract, from left to right

Distribution
1. Multiply the # or variable outside the parenthesis by each term inside the parenthesis
2. Check the signs (+/-)

Multiplying Exponents vs. Dividing Exponents
1. Add & Subtract   exponents
2. Multiply & Divide integers

Solving with Absolute Value
1. Set up two equations
2. One with a positive answer
3. One with a negative answer
4. Solve each equation

Multiplying by a Fraction
1. Multiply the numerator by all values
2. Divide this product by the denominator

Estimating the value of a Radical ($\sqrt{}$)
1. For a square root, find the closest square number.
2. Estimate the value (higher/lower)
3. If it's a cube root, find the closest cube number
4. Estimate this value.

Multiplying Binomials
1. Use **FOIL** -- first, outside, inside, last

Patterns, Relations, and Algebra Solving Equations for One Variable
1. Distribute
2. Combine Like Terms
3. Get all the variables on the left side (+/-)
4. Get all number values on the right side (+/-)
5. Divide both sides by the coefficient
6. Remember, whatever you do to one side, you must do to the other

Using Proportional Relationships
1. Determine the Part to Whole relationship
2. Write a ratio for the KNOWN part to whole
3. Determine the second ratio -- given/missing information
4. Set up a proportion with X representing missing value in the UNKNOWN ratio

Properties of Proportions
1. If $\frac{a}{b} = \frac{c}{d}$, then $ad = bc$
2. product of the means = product of the extremes Cross multiply to solve for missing variable

Ratios used in Proportional Relationships
1. Part / Whole
2. Percent (%) / 100
3. # of degrees / 360
4. sample / total population
5. Part:Part

Solving Systems of Equations w/ Substitution
1) +/- the x term, move to the right side
2) ÷ by the coefficient of y (÷ by # with y)
3) Set the expressions equal to each other & solve for x.
4) Substitute x & solve for y.
5) Write solution as a coordinate pair (x , y).

Using the Equation of a Line/Slope(m)
$$y = mx + b \qquad m = \frac{y_2 - y_1}{x_2 - x_1}$$
$$y - y_1 = m(x - x_1)$$
Graphing: Begin with b, and move with m
Parallel Slopes: $m_1 = m_2$
Perpendicular slopes: $m_1 \cdot m_2 = -1$

WEBSITE RESOURCES FOR EXTRA HELP

http://patrickjmt.com

https://www.khanacademy.org

http://www.youtube.com/

http://www.mathsisfun.com

http://www.mathwarehouse.com

http://mathbits.com

http://www.themathpage.com

http://mathplanet.com

1. What is the greatest common factor of $3d^2$ and $18d$?
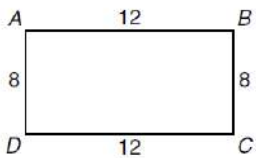   a. $6d^2$
   b. $6d$
   c. $3d^2$
   d. $3d$

2. Find the value of $\sqrt{64}$.
   a. 4
   b. 32
   c. 8
   d. 988

3. Round 17.031 to the nearest tenth.
   a. 17
   b. 17.1
   c. 17.03
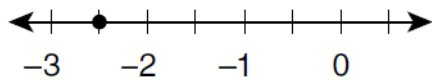   d. 17.8

4. What is the ratio of BC to AB, in simplest form?

   a. $1:1$
   b. $2:3$
   c. $3:2$
   d. $4:3$

5. Which of the following has a unit rate of 8 miles per hour?
   a. 60 miles in 2 hours
   b. 85 miles in 5 hours
   c. 90 miles in 10 hours
   d. 120 miles in 15 hours

6. Identify the point graphed on the number line.

   a. -1.5
   b. -2.2
   c. -2.5
   d. -3.5

7. The table shows a relation. Which statement about the relation is correct?

Input	Output
⁻1	2
3	⁻1
1	2
⁻2	3
⁻1	1

   a. The relation is a function because each input has exactly one output.
   b. The relation is a function because each output has exactly on input.
   c. The relation is not a function because one input has more than one output.
   d. The relation is not a function because one output has more than one input.

8. A relation containing ordered pairs is shown below. One of the ordered pairs is missing an x-coordinate.
$$\{(-1,4), (0,4), (2,5), (3,-6), (?,7)\}$$
   What could be the missing x-coordinate if the relation is **NOT** a function?
   a. -1
   b. 4
   c. 7
   d. -3

9. Which of the following functions are **NOT** linear? Choose all that apply.
   a. $y = \frac{x}{5}$
   b. $y = 5 - x^2$
   c. $-3x + 2y = 4$
   d. $y = 3x^2 + 1$
   e. $y = -5x - 2$
   f. $y = x^3$

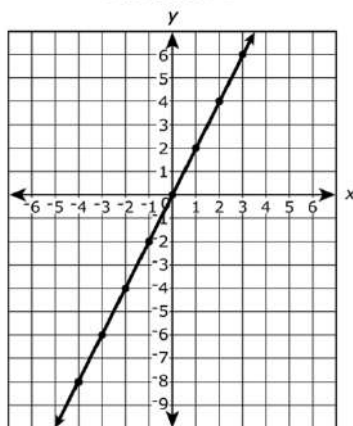**10.** Which of the following expressions have a value of 4? Choose all that apply.

    a. $\sqrt[3]{8}$

    b. $\sqrt{16}$

    c. $\sqrt{64}$

    d. $\sqrt{4}$

11. Some values of linear functions A and B are shown in the table and graph. Which of the following describes the y-intercepts of the two functions?

Function A

x	y
0	1
1	1.25
2	1.5
3	1.75
4	2

Function B

a. The y-intercept of Function A is equal to the y-intercept of Function B.

b. The y-intercept of Function A is 1 unit less than the y-intercept of Function B.

c. The y-intercept of Function A is 1 unit greater than the y-intercept of Function B.

d. The y-intercept of Function A is 2 units greater than the y-intercept of Function B.

12. Find the perimeter of rhombus ABCD.
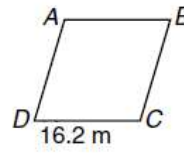
    a. 32.4   b. 262.44

    c. 64.8   d. 268.96

13. What is the area of a triangle with a height of 32 meters and a base of 20 meters?

    a. 160 m²

    b. 640 m²

    c. 320 m²

    d. 656 m²

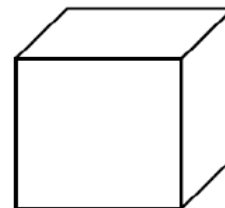**14.** Solve I = Prt for r.

    a. $r = \dfrac{P}{It}$

    b. $r = \dfrac{I}{Pt}$

    c. $r = Irt$

    d. $r = Ipt$

15. Write the equation or inequality: The difference of a number, *c,* and 17 is less than 33

    a. c – 17 = 33   b. 17 – c = 33

    c. c – 17 > 33   d. c – 17 < 33

16. Determine the volume of a cube with side length 13 ft.

    a. 169 ft³

    b. 2197 ft³

    c. 219 ft³

    d. 84.5 ft³

17. Simplify $\sqrt{\dfrac{64}{100}}$

    a. $\sqrt{\dfrac{4}{10}}$ b. $\dfrac{2}{5}$

    c. $\sqrt{\dfrac{4}{5}}$ d. $\dfrac{4}{5}$

18. Evaluate $|12 - 26 - 6|$

    a. -20 b. -44

    c. $\;\;44$ d. 20

19. Simplify the expression $2(8 - 3) - 6$

    a. 7 b. 4

    c. $\;1$ d. -2

20. Which expression is equivalent to the expression $6(s - 1)$

    a. $6s - 6$ b. $\;s - 6$

    c. $\;s - 36$ d. $\;6s - 36$

21. Simplify $18 - c + 9c + 6$

    a. $24 + 8c^2$ b. $32c$

    c. $\;24 + 8c$ d. $-18c + 15c$

22. Which equation corresponds to the statement "the length, l, of the rectangle is four times the width, w ".

    a. $w = 4 + l$ b. $w = 4l$

    c. $\;l = 4w$ d. $l = 4 + w$

23. In the equation shown, what is the value of n?

$$\frac{9^7}{9^n} = 9^5$$

    a. 2 b. 5 c. 7 d. 12

24. Simplify $\dfrac{9r^3}{12r^2}$

    a. $\dfrac{3r^3}{4r}$ b. $\dfrac{3r}{4}$

    c. $\dfrac{4r}{3}$ d. $\dfrac{9r}{12}$

25. Simplify $5g(g - 9h)$

    a. $6g^2 - 14gh$ b. $5g^2 - 45gh$

    c. $5g^2 + 5g - 9h$ d. $6g^2 - 9h$

26. Simplify $9x - 4y + 5x - 2y$

    a. $8xy$ b. $14x^2 - 2y^2$

    c. $14x - 21$ d. $14x - 6y$

27. What is the product of $(y + 2)(y - 8)$

    a. $y^2 + 6y - 16$ b. $y^2 - 6y - 16$

    c. $y^2 - 6y + 16$ d. $y^2 + 6y + 16$

28. Evaluate $(2x - 4)^2$

    a. $4x^2 - 16$

    b. $4x^2 + 16x - 16$

    c. $4x^2 - 16x + 16$

    d. $4x^2 + 16$

29. Factor $5x^3 - 15x^2$

    a. $5x^2$ b. $x^2(5x - 15)$

    c. $5x^2(x - 3)$ d. $3x^2(x - 5)$

30. Factor the polynomial, $x^2 + 5x + 6$ completely.

    a. $(x + 6)(x + 1)$

    b. $(x + 3)(x + 2)$

    c. $(x - 3)(x - 2)$

    d. $(x - 6)(x + 1)$

31. Solve the equation $14c - 6 = 22$

    a. $c = \frac{7}{8}$ b. $c = 2$

    c. $c = 28$ d. $c = 308$

32. Solve $A = \frac{1}{2}bh$ for h.

    a. $h = \frac{A}{2b}$ b. $h = 2Ab$

    c. $h = \frac{2b}{A}$ d. $h = \frac{2A}{b}$

33. Find the simplest radical form of $\sqrt{72}$

    a. $6\sqrt{2}$ b. 6

    c. $2\sqrt{6}$ d. $\frac{\sqrt{2}}{2}$

34. Simplify $\left(2\sqrt{5}\right)^2$

    a. 10 b. 14

    c. 20 d. $\frac{5}{4}$

35. Simplify $(\sqrt{37})^2$

    a. 37 b. $\sqrt{37}$

    c. $1,369$ d. $\frac{37}{2}$

36. Which pair of linear equations represent parallel lines?

    a. $\begin{cases} y = 2x + 3 \\ y = -2x + 5 \end{cases}$

    b. $\begin{cases} y = 8x - 5 \\ y = 8x - 5 \end{cases}$

    c. $\begin{cases} y = -4x - 3 \\ y = -\frac{1}{4}x + 7 \end{cases}$

    d. $\begin{cases} y = -6x + 2 \\ y = \frac{1}{6}x - 5 \end{cases}$

37. A bathtub filled with water has a slow leak. The graph shows the relationship between y, the amount of water, in cups, that leaks from the bathtub in x hours. What is the flow rate of the leak?
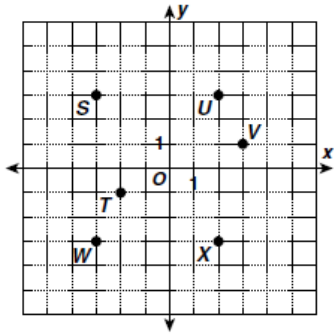

Bathtub Leak
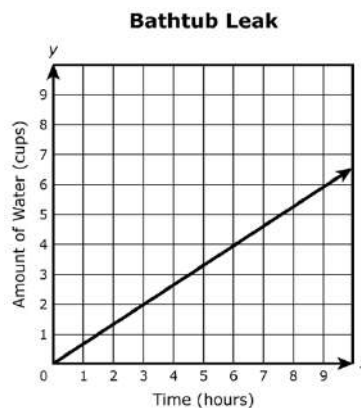
    a. $\frac{1}{4}$ cups per hour

    b. $\frac{2}{3}$ cups per hour

    c. $\frac{4}{3}$ cups per hour

    d. $\frac{3}{2}$ cups per hour

38. Solve the proportion $\frac{3}{4} = \frac{x}{40}$

    a. $x = 5$ b. $x = 25$

    c. $x = 10$ d. $x = 30$

39. Which ordered pair corresponds to point S?

    a. $(-3,3)$ b. $(-2,1)$

    c. $(3,2)$ d. $(-3,-2)$

40. Solve for y if $y^2 - 4 = 12$

    a. $y = \pm 25$ b. $y = \pm 5$

    c. $y = \pm 4$ d. $y = \pm 3$

41. What value completes the square for the expression $x^2 - 6x + $ ___?

    a. 36   b. 12

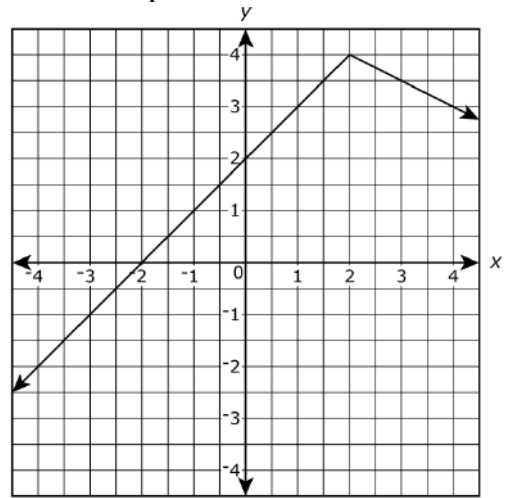   c. 9   d. 3

42. Solve $x^2 - 4x - 5 = 0$ by factoring.

    a. -1, -5   b. -1, 5

    c. 1, -5   d. 1, 5

43. Determine the solution(s) of the equation $x^2 = 36$. Choose all answers that apply.

    a. $x = -18$
    b. $x = -6$
    c. $x = -\sqrt{6}$
    d. $x = -\sqrt{6}$
    e. $x = 6$
    f. $x = 18$

44. The graph of a function is shown on the coordinate plane.

Which table of values consists of ordered pairs that are represented on the graph?

A.

x	y
−1	1
0	2
2	4
4	6

B.

x	y
−2	0
−1.5	0.5
0.5	2.5
3	5

C.

x	y
−3	−1
−1	3
1	3
3	1

D.

x	y
−4	−2
−0.5	1.5
0.5	2.5
4	3

45. The graph of a system of equations is shown on the coordinate grid. What is the value of y in the solution to this system of equations?
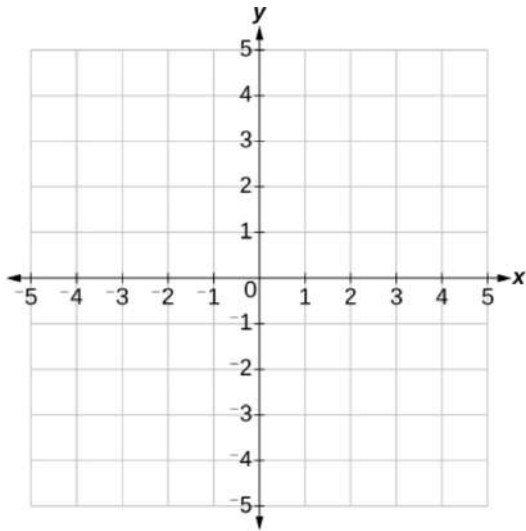

    a. -5

    b. -2

    c. 3

    d. 5

9
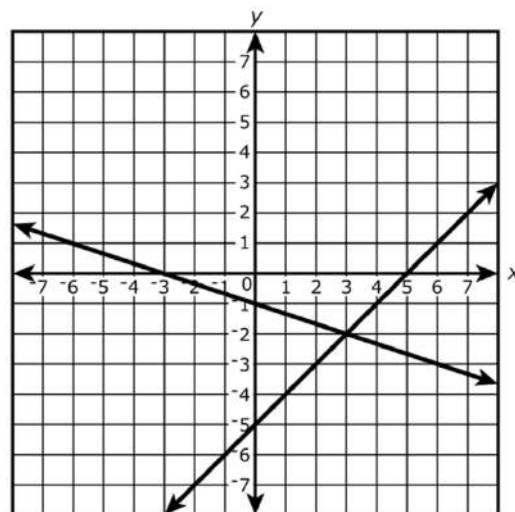
<u>**Open Ended:**</u>

46. A linear function has the properties that:

- y is a function of x ,
- each output is half the corresponding input, and
- when the input is -2, the output is -1 .

To graph the line, select two points on the coordinate plane. A line will be drawn through the points.

47. The perimeter of a triangle *DEF* is 81 units. The length of side DE is twice the length of side *EF*, and the length of side *DF* is 4 units less than the length of side DE.

Part A:
Let *s* represent the length, in units, of side *EF*. Write an equation that can be used to find the value of *s*?

_____

Part B:
What will be the length, in units, of side *EF*?

_____

48. Here is information about gasoline prices at Gas Station Y and Gas Station X.
The table shows the cost of different numbers of gallons of gasoline at Gas Station Y.

Gas Station Y

Number of Gallons	Cost (dollars)
2	6.74
5	16.85
9	30.33

At **Gas Station Z**, the cost of 15 gallons of gasoline is $51.30 and the cost of 8 gallons of gasoline is 27.36. What is the cost, in dollars per gallon, of the gasoline at the gas station with the **greater** cost?

_____

49. Tim has $20 to buy snacks for 12 people in an office. Each person will get one snack. Tim is buying bags of pretzels that cost $1.50 per bag and bags of crackers that cost $2.00 per bag.
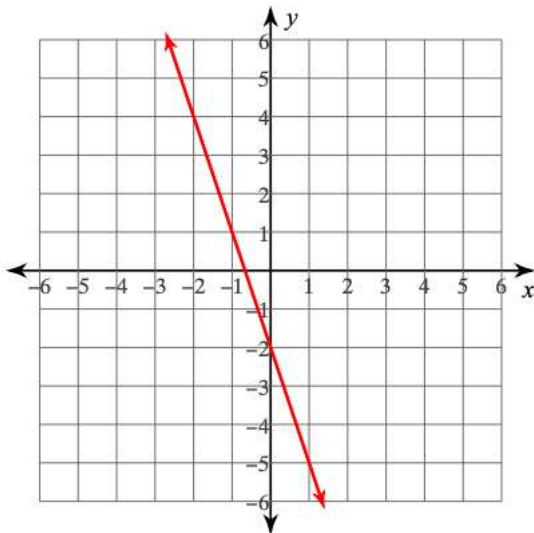**Part A:**
Tim is buying x bags of pretzels and y bags of crackers. Which system of equations can be used to find the value of x and y?

_____   _____

Part B:
How many bags of pretzels and crackers does Tim buy?

Pretzels_____   Crackers_____

50. Given the following graph write the equation of the line.

_____

1. _____	2. _____
3. _____	4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

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50. _____