Point Pleasant Boro High School
Mathematics Department
Geometry
Summer Review Packet

* Welcome to Geometry! This summer review assignment is designed for ALL students enrolled in Geometry for the 2018-2019 school year to refresh your Geometry skills and prepare for a successful year!

- π   The packet is to be completed <u>by the first day of school</u>.

- π   It <u>will be collected</u> and graded based upon completion and effort.

- π   To receive full credit on the summer work, every problem must be attempted even if the final answer was not obtained.

- π   Because these are not new concepts, topics in this packet will be reviewed at a rapid pace during the beginning of the school year.

- π   All of the material in the math packet are math skills that you should had learned in your previous math classes.

- π   A <u>formal assessment will be given</u> based on information reviewed in this packet during the first few weeks of school in September.

- π   You will be required to take this assessment even if you are absent for the in-class review sessions.

- π   When necessary, use the formulas provided in this packet and online sites to help refresh your memory!

- π   You MUST show all work on an additional sheet of paper in order to receive credit!

- π   Only answers are allowed to be written on this packet (all work must be shown on additional sheets of paper and remember to *label your work.*

<div align="center">Have fun with the problems! =)</div>

Section 1: Algebra One topics that are expected of you to know

Solving equations:

1). $7(6 - 8v) = -5v - 9$

2). $\frac{a}{16} = -8$

3). $\frac{3}{x} = \frac{5}{7}$

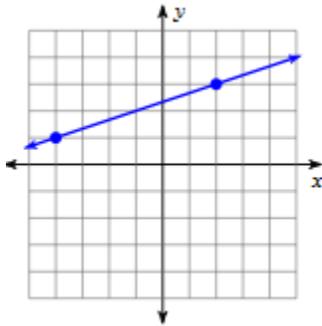Finding Slope from two points: Slope formula: $\frac{y_2 - y_1}{x_2 - x_1}$

4). (5, 7) and (-8, 9)
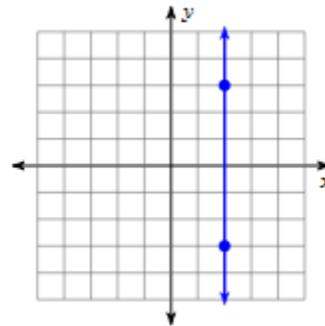
5). (-2, -7) and (6, -7)

6). (22, 6) and (22, -5)

Finding Slope given a graph. Slope formula: $\frac{rise}{run}$
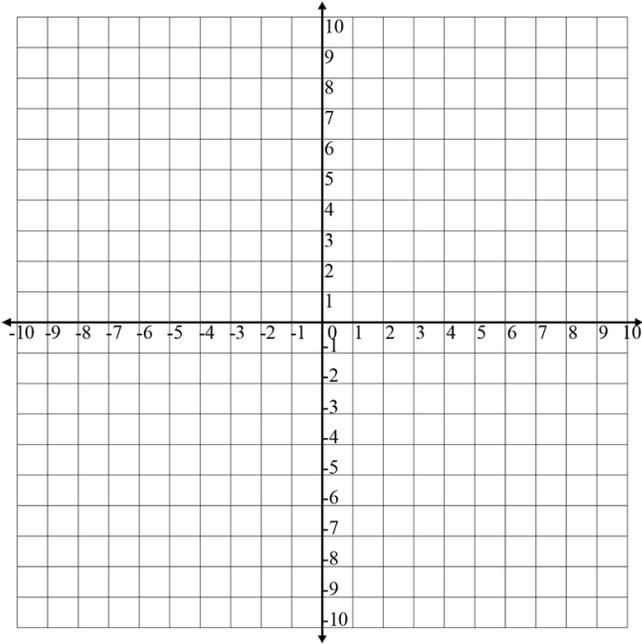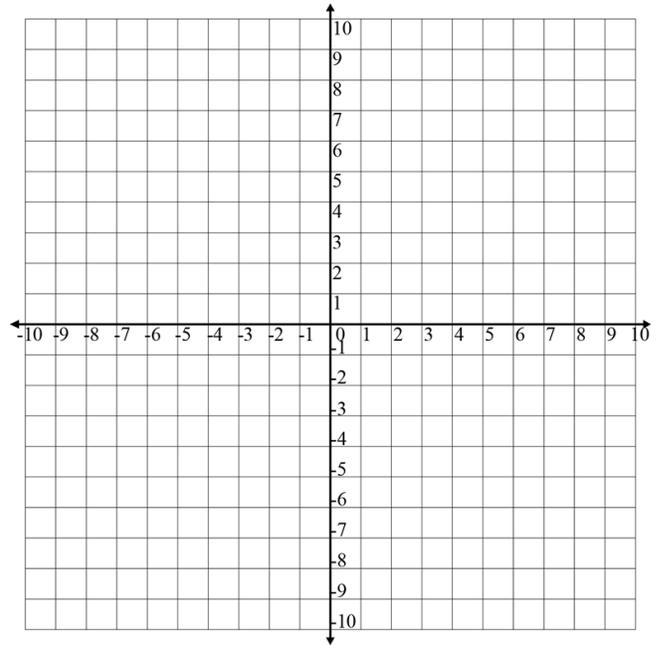
7).

8).

Graphing linear equations in slope intercept form ($y = mx + b$)
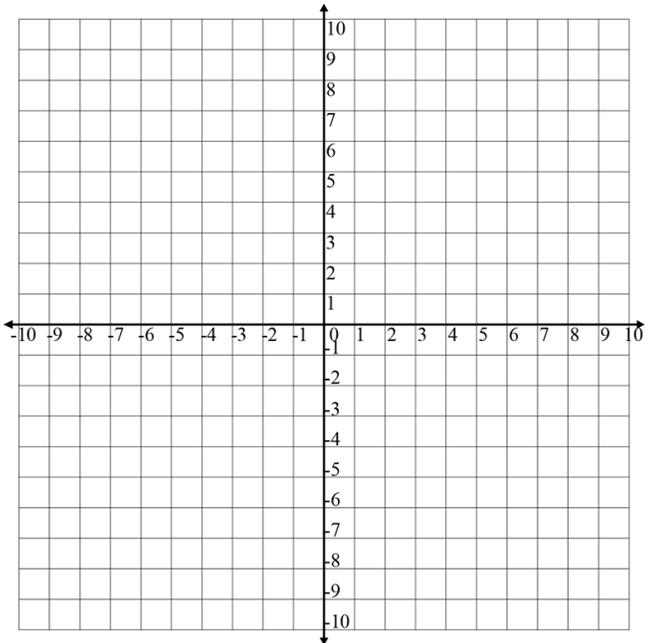
9). $y = \frac{2}{3}x + 3$
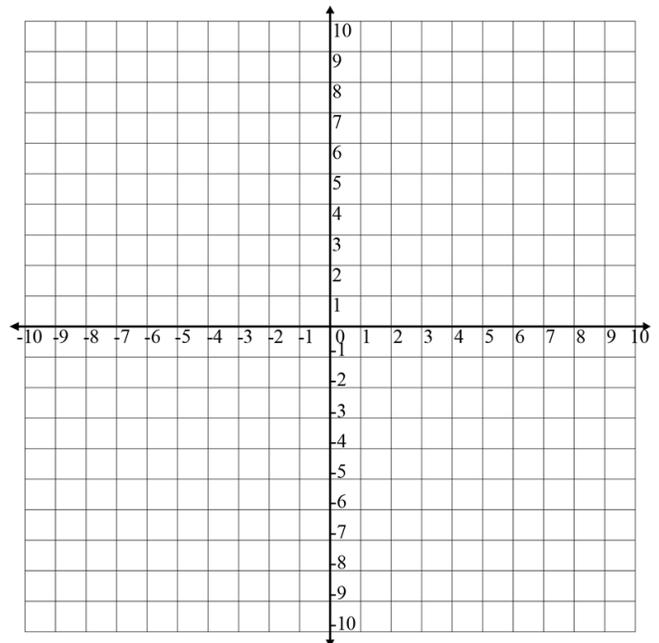
10). $y = -2x + 5$

11). $3x + 4y = -8$

12). $x = 2$

Hint: Solve for y to put in slope intercept first

Simplifying Radicals

13). $\sqrt{80}$

14). $\sqrt{64}$

15). $\sqrt{27}$

Simplifying Expressions

16). $2x + 3y - x^2 + 6y$

17). $2(x^2y + 6) - (x^2y + 2) - 8$

18). $(x + 6)(x - 2)$

19). $(x - 2)(x^2 + x - 5)$

Hint: $x * x = x^2$

Evaluating Expression when $x = -2$ and $y = 6$. (Evaluating=substitution)

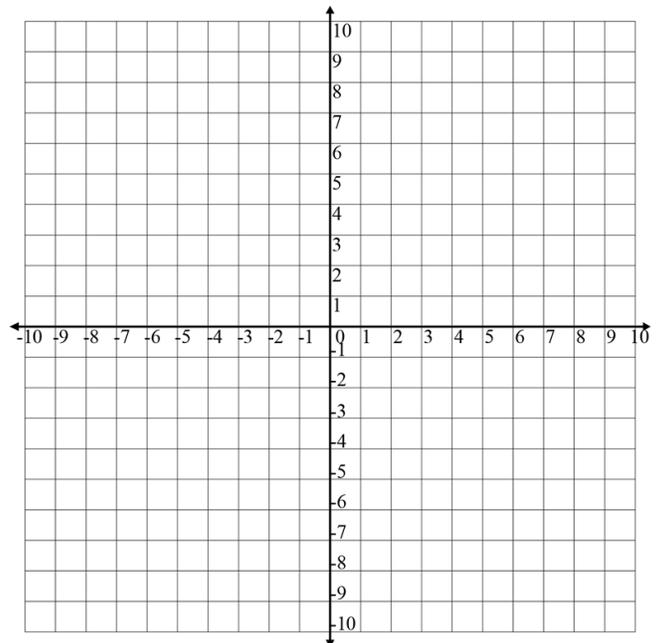**20).** $x^2 + 7y + 2(x - 8)$

21). $\dfrac{xy}{3}$

Solving Systems of Equations

❖ To solve a linear system by graphing, graph each equation and look for a point at which the lines intersect. One solution occurs when the graphs of the equations intersect in one point. The solution is the intersection point of the intersection.

22). Solve the following system by graphing:

$y = -x + 2$

$y = 3x - 2$

Intersection point: _____

❖ Systems of equation can be solved algebraically as well. The substitution method is easiest when at least one of the equations.

23). Solve the following system by substitution

$2y + 12x = 44$

$y = 5x$

Intersection point:_____

❖ The elimination method is best for systems in which the coefficients (number in front of the variable) of one of the variables can easily be made the same.

24). Solve the following systems by elimination
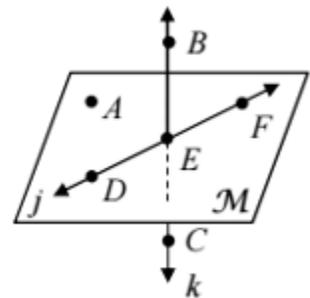
$4y + 3x = 12$

$2y + 2x = 8$

Intersection point:_____

<div align="center">

Section 2: Geometry Topics that you are expected to know

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**Review of Points, lines, and Planes:**

25). Use the diagram to the right to name the following

    a). A line containing point F _____

    b). Another name for line k _____

    c). A plane containing Point A: _____

    d). Intersection point of plane M and line K. _____

    e). Name three collinear (points on the same line) points: _____

26). Use the diagram to the right to name the following:

    a). Three coplanar (points on the same plane):_____

    b). A plane containing point X: _____

    c). How many planes are there in the figure?_____
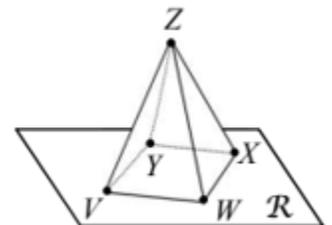
Review of Angles:

27). For the following problems, use the diagram on the right and use the following definitions.
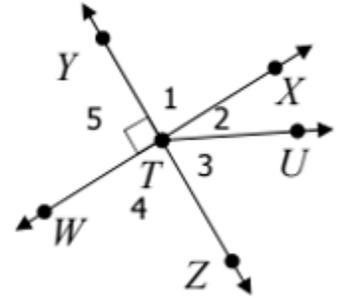
<u>Acute angle</u>: Angle less than 90°   <u>Right angle</u>: 90°

 <u>Obtuse angle</u>: Angle greater than 180°   <u>Straight angle</u>- 180°

Angles are made up of two rays that share a common end point. We name rays as such $\overrightarrow{TY}$

a). Classify $\angle YTW$ as right, acute, obtuse, or straight: _____

b). Classify $\angle YTU$ as right, acute, obtuse, or straight: _____

c). Classify $\angle XTU$ as right, acute, obtuse, or straight: _____

d). Name the two rays that make up $\angle UTZ$:_____

e). Name the two rays that make up $\angle YTW$:_____

Angle Relationships:

❖ <u>Complementary angles</u>: angles that add up to 90°.
❖ <u>Supplementary angles</u>: angles that add up to 180°
❖ <u>Linear pair</u>: Two angles that create a straight line and add to 180°.
❖ <u>Vertical angles</u>: angles opposite each other when two lines cross. They are equal in measure.

28). $\angle A$ and $\angle B$ are complementary angles. If the measures of $\angle A$ is 42°, what is the measure of $\angle B$?
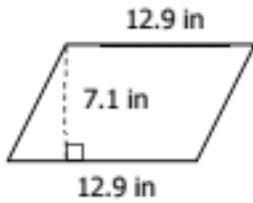
29). $\angle J$ and $\angle K$ form a linear pair. If the measure of $\angle J$ is 113°, what is the measure of $\angle K$?

30). $\angle E$ and $\angle F$ are vertical angles. If $m\angle E = 17x + 1$ and $m\angle F = 20x - 14$, find $m\angle f$.
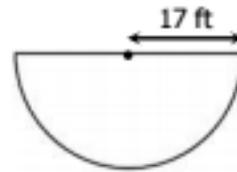
Area and Volume:

❖ Area of parallelogram: $A = Base * Height$
❖ Area of Circle: πr^2
❖ Area of a Triangle: $A = \frac{base*height}{2}$

31). Find the area of the following parallelogram
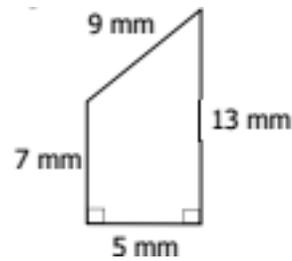
12.9 in

7.1 in

12.9 in

32). Find the area of the following semicircle

17 ft

33). Find the area of the following triangle

18.2 ft

7 ft
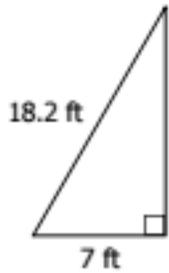
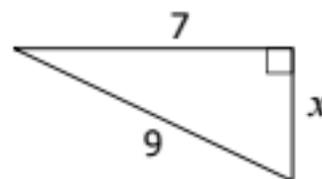**34).** Find the area of the following figure.

9 mm

13 mm

7 mm

5 mm

Pythagorean Theorem: $a^2 + b^2 = c^2$

For problems 28-31, find the value of x and round each answer to the nearest tenth.

35).

8

x

13

36).

7

9

x

37).

19.1

30.5

x

38).

18

16

x
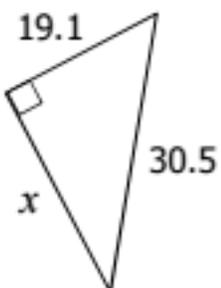
5
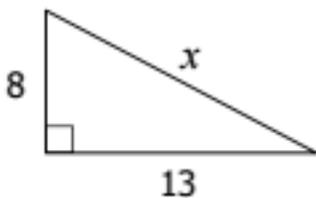
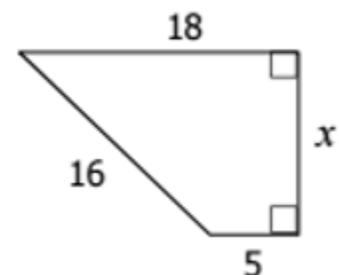**39).** A roofer leaned a 16 foot ladder against a house. If the base of the ladder is 5 ft from the house, how high up does the ladder reach? Draw a picture of the given scenario and solve for the height of the ladder using the Pythagorean Theorem.

40). Ashley jogged 3.4 miles east, then 5.7 miles south. How far is Ashley from her starting point? Draw a picture of Ashley's jog and solve for the missing piece.

41). A 31 foot support wire is attached from the top of a 25 foot telephone pole to a point on the ground. How far from the poles base does the wire meet the ground? Draw a picture of the given scenario and solve for the length between the pole and the wire.