Name: _____

2016-2017 Mathematics Teacher: _____

Summer Review for incoming <u>Geometry General</u> students

Please complete this review packet for the
FIRST DAY OF CLASS.

The problems included in this packet will provide you with the opportunity to practice the mathematical skills you have learned throughout the current school year and will help you to be prepared for the concepts you will learn in Geometry next school year. You are responsible for ALL the concepts covered in the packet. If you do not remember how to complete a problem, look it up in your notes or online. If you should misplace this packet, you can find a copy posted on the district website:

http://nbhs.northbranfordschools.org/

Your first **<u>quiz</u>** will be based on the material within this packet.

You will receive a <u>triple homework grade</u> (worth 3 homework assignments) on this packet based on the following criteria:

- Work is received on the first day of class
- All problems are completed
- All work is shown

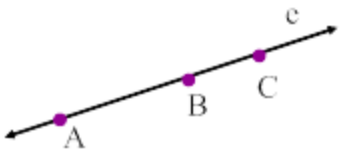
Part I – GEOMETRY REVIEW

A quick review of geometric terminology and proper notation:

Point – an undefined term; shows location; has no size; represented by a small dot; named with a single capital letter.

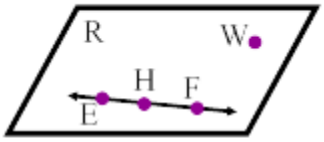
•A Example, this is point A.

Line – an undefined term; an infinite number of points extending in opposite direction without end; no thickness; named with one lower case letter OR 2 points on the line.



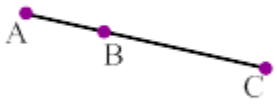
Example, this is $\overleftrightarrow{AB}$, or $\overleftrightarrow{AC}$, or $\overleftrightarrow{CB}$, or line e.

Plane – an undefined term; a flat surface extending without end; no thickness; named with one capital letter OR 3 points not on the same line



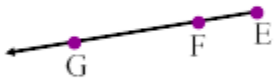
Example, this is plane EHW, or WFH, or EWF, or plane R.

Line segment – part of a line containing 2 endpoints and all points in between; named by its endpoints with a segment bar.



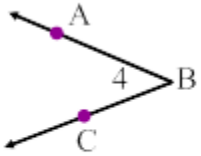
Example, this is $\overline{AC}$, or $\overline{CA}$.

Ray – part of a line starting at one endpoint and containing all points of the line on one side of this endpoint; named by its endpoint and one other point on the ray. Note the arrowhead always points to the right when naming a ray.



Example, this is $\overrightarrow{EF}$, or $\overrightarrow{EG}$.

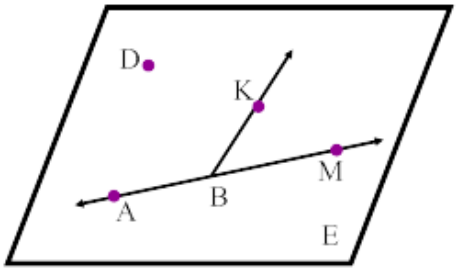
Angle – two rays with a common endpoint called the vertex; named with 3 points – the middle point being the vertex of the angle.



Example, this is $\angle ABC$, or $\angle CBA$, or $\angle B$, or $\angle 4$.

Read the previous page before answering these questions.

1. Referring to the diagram to the right, name:



a) a point

b) the plane

c) a line

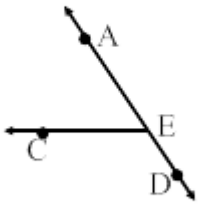
d) a ray

e) two segments

f) an angle

Opposite rays are rays with the same endpoint and extend out in opposite directions. For example, in the plane in #1 above, $\overrightarrow{BA}$ and $\overrightarrow{BM}$ are opposite rays.

2. Referring to the diagram to the right, name:



a) a pair of opposite rays (read definition above)

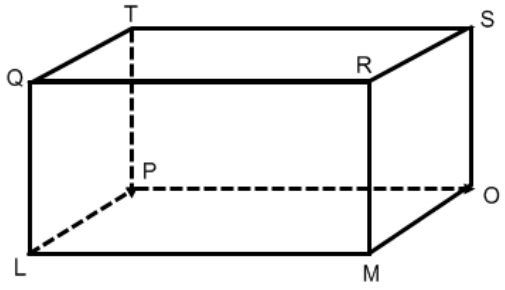
b) $\overleftrightarrow{AE}$ in another way

c) $\overline{AD}$ in another way

d) <DEC in another way

Refer to the diagram of a 3-D box at the right for questions #3–9.

3. When segments or lines intersect, they intersect in a point. Where do $\overline{RM}$ and $\overline{OM}$ intersect?



4. Name a segment parallel to $\overline{PT}$.

5. Which side of the box does QTP represent?

6. Name a line parallel to $\overline{QM}$.

7. Name a plane parallel to plane OML.

8. When planes intersect, they intersect in a line. Where do planes LMR and SOM intersect?

9. Name a segment **perpendicular** to (forms a right angle with) $\overline{RM}$.

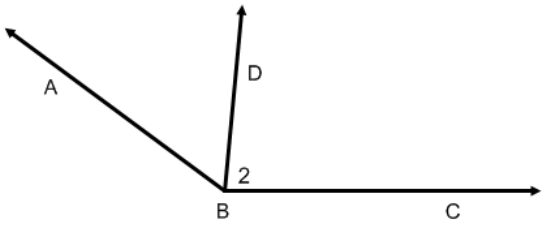
Use the diagram to the right to answer questions #10 & 11.

10. Name all the segments (there are 3).

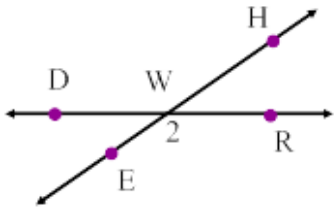
11. Name all the rays (there are 4).

12. Name $\angle 2$ in as many ways as possible (there are 2 other ways for each).

a)



b)



13. a) An acute angle measures _____

b) An obtuse angle measures _____

c) A straight angle measures _____

Look up the answers to #13 & 14 if you don't know the answers.

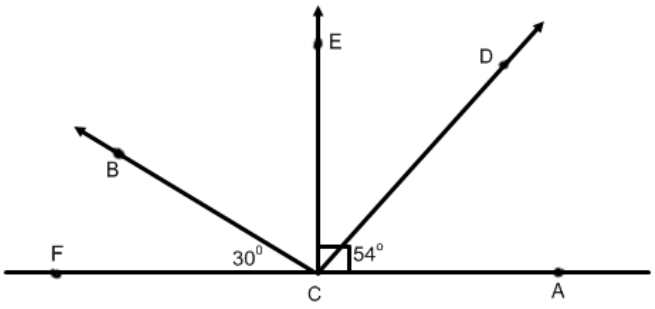
14. a) Complementary angles are _____

b) Supplementary angles are _____

For questions #15-17, refer to the diagram to the right.

15. a) Name one acute angle.

b) Name one obtuse angle.



The "box" in the diagram means that $\overrightarrow{CE}$ and $\overleftarrow{FA}$ are **perpendicular**.

16. Find the measure of each angle.

a) $\angle BCE$ b) $\angle BCD$

c) $\angle ACB$

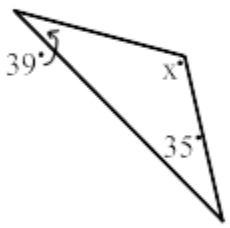
17. a) What is the measure of the <u>complement</u> of <ACD above?

b) What is the measure of the <u>supplement</u> of <FCB above?

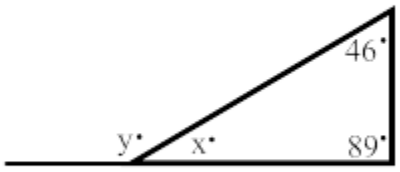
18. The sum of the measures of every triangle equals _____.

19. Find the values of the variables.

a)

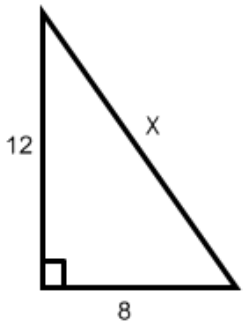


b) Hint - Find x first. To find y, what is the sum of x and y?

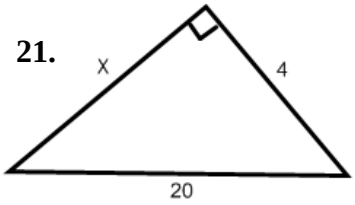


For #20 & 21, use the Pythagorean Theorem ($a^2 + b^2 = c^2$) to find the missing length. Round answers to the nearest hundredth (2 places after the decimal point).

20.



21.



22. Find the area & perimeter of #20 above.

23. Find the area & perimeter of #21 above.

Part II – ALGEBRA REVIEW

24. Simplify the radicals.

a) $\sqrt{32}$

b) $\sqrt{125}$

c) $2\sqrt{24}$

d) $5\sqrt{16}$

25. Solve the equations.

a) $5x + 3 = 2x - 6$

b) $7(x - 2) + 5 = 6 - 2(x + 8)$

c) $4x - 5 + 2x = 16 - 3x$

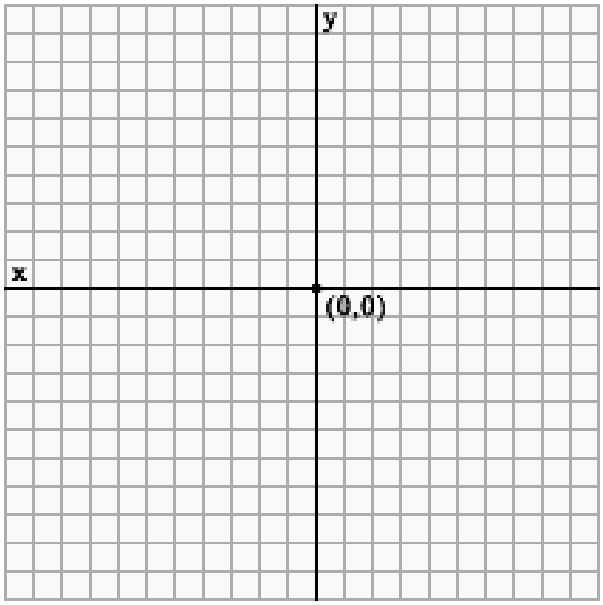
26. Are the pairs of lines parallel, perpendicular, or neither?

a) $y = -\frac{3}{4}x + 6$
$y = \frac{3}{4}x - 4$

b) $y = 6x - 15$
$y = 6x + 10$

27. If a line f has a slope of -3, what is the slope of line g which is perpendicular to it?

28. Plot and label the points A(6, 5), B(-4, 8), C(-7, 0). Connect the points to form a triangle. Find the slope of each side.



29. Solve the quadratic equation (all can be factored).

a) $x^2 + 5x - 36 = 0$

b) $x^2 - 4x + 4 = 0$

c) $6x^2 - 36x = 0$

d) $x^2 - 15x + 56 = 0$

e) $x^2 - 25 = 0$