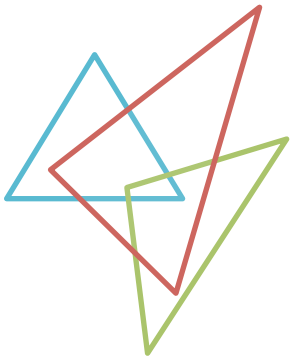
Name_____ Period_____ Score_____/_____

SAGE/Term 4 REVIEW - Geometry



Remember to show your work!!

1. Maria wants to build a metal triangle sculpture with three interlocking triangles, similar to the one pictured below. She wants each of her triangles to be different types: one scalene, one equilateral, and one isosceles. The lengths she is working are: $4\ in.$, $2in.$, $5in.$, $8in.$, $4in.$, $4in.$, $8in.$, $9in.$, $3in.$
   a. What lengths could Maria use to make an equilateral triangle?_____
   b. What lengths could Maria use to make a scalene triangle?_____
   c. What lengths could Maria use to make an isosceles triangle?_____
   d. Can Maria make all three triangles if she uses each length only once? Explain._____

2. Will the following angle measures form a triangle? If yes, what type? If no, why not?
   88°, 12°, 80°

3. Will the following angle measures form a triangle? If yes, what type? If no, why not?
   90°, 12°, 78°

4. Will the following angle measures form a triangle? If yes, what type? If no, why not?
   40°, 70°, 70°

Animal Housing

- Mouse's house is very small. His house is a circle with a radius of 3 feet.
- Double-Dog's house is also a circle and his radius is double Mouse's house's radius.
- Triple-Threat-Tiger's house is also a circle and his radius is triple the radius of Double-Dog's.

5. Fill in the table below with the information from the sketches above.

Homeowner	House Radius	House Diameter	House Area	House Circumference
Mouse				
Double-Dog				
Triple-Threat-Tiger				

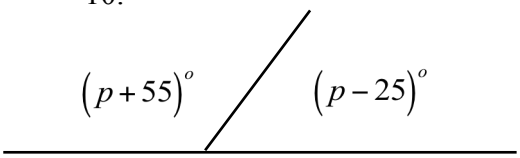
6. If each homeowner wanted 8 feet of grass between their house and their fence, how much grass would thy need to buy, assuming they don't grass the inside of their home?
   a. Mouse b. Double Dog c. Triple-Threat-Tiger

7. Compare measurements for **Mouse and Double-Dog's house**. Use the **scale factor** for the comparison.
   a. Radius b. Diameter c. Area d. Circumference

8. Compare measurements for **Double-Dog and Triple-Threat-Tiger's house.** Use the **scale factor** for the comparison.
   a. Radius b. Diameter c. Area d. Circumference

Use your angle knowledge to solve for the missing variables in each situation. Also, indicate what type of angle relationship is being shown/used (complementary, supplementary, or vertical angles).

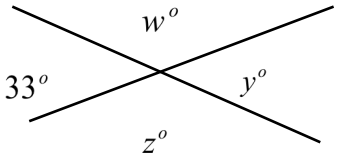
10.



Relationship_____

p =_____

11.

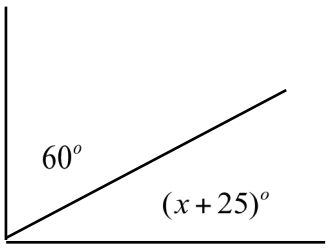


Relationship between z and w_____

Relationship between y and 33*_____

w=_____, z =_____, y =_____

12.



Relationship between the two angles _____

x=_____,

For each cross-section described below, state the shape of the cross-section and its area. Draw a picture to help if you get stuck.

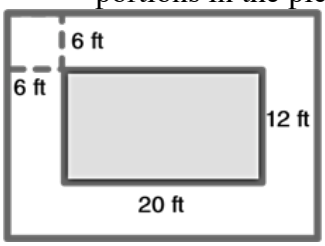
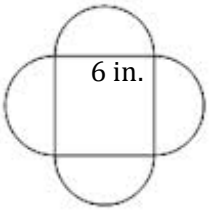
13. Imagine a right square based rectangular prism with edge lengths $\frac{3}{4}$ x $\frac{3}{4}$ x $4\frac{1}{2}$ inches.
   a. If you make a cut parallel to the square base, what will the cross section be?
   b. What will the area of the cross section described in "a" be?
   c. What will the cross section be if the cut is made perpendicular to the base? _____
   d. What will the area of the cross section in "c" be?

14. Imagine cutting a sphere with diameter 10, parallel to the table. What shape will any cross section be?_____

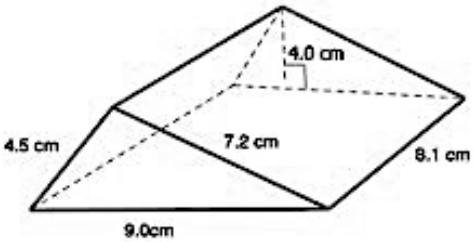
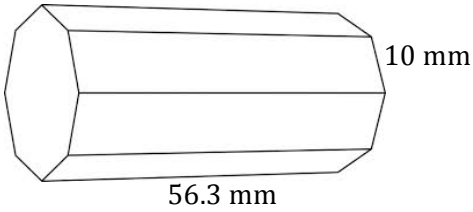
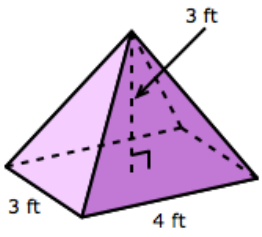
15. Imagine cutting a cylinder of diameter 12.62cm and height 8cm, parallel to the base.
   a. What shape is the cross section and what is its area?_____
   b. What shape is the cross section if the cute is perpendicular to the base? _____

16. Imagine a triangular prism:
   a. What shape is the plane section parallel to the base?_____
   b. What shape is a cross section perpendicular to the base?_____

17. Imagine cutting a square based pyramid parallel to the base.
   c. What shape is the cross section?_____
   d. If the dimensions of the length and the width of the plane section are $\frac{3}{2}$ in. and $\frac{3}{2}$ in., what is the area of the cross section?

18. Calculate the area of the shaded and un-shaded portions in the picture below 	19. Calculate the area of the figure below. Round your answer to the nearest hundredth if necessary. 

Fill in the table below. Round answers to the nearest tenth if needed.

Figure	Base of the figure	Surface Area	Volume
20. Triangular Prism 			
21. Area of the base = 476 mm^2 *Note: all sides of the octagon are congruent* 			
22. Rectangular Pyramid. The slant height of each side is 3.6 ft. 			
23. The measurements are in cm.