(8) 1. Circle the number which best completes each statement. (If the answer is "infinite", circle the symbol "∞".

a. 0 1 2 3 ∞ The number of distinct points necessary to determine a specific line is ....

b. 0 1 2 3 ∞ The number of planes containing a line is ...

c. 0 1 2 3 ∞ The number of intersection points of a pair of skew lines is ....

d. 0 1 2 3 ∞ The number of points shared by a plane and a line perpendicular to the plane is ....

e. 0 1 2 3 ∞ The number of non-collinear points needed to determine a plane is ...

f. 0 1 2 3 ∞ The number of planes containing two lines which intersect is ....

g. 0 1 2 3 ∞ The number of different (non-congruent) triangles with sides 5cm, 7cm, & 9cm, is ....

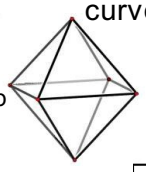
h. 0 1 2 3 ∞ The number of different (non-congruent) triangles with sides 2cm, 4cm, & 6cm, is ....

(6) 2. Multiple choice. For each statement, choose the BEST completion of the statement from this list:

A circle	B cube	C hexahedron	D line	E octahedron	F parallelogram
G plane	H point	I polygon	J polyhedron	K prism	L pyramid
M rectangle	N rhombus	O segment	P sphere	Q square	R simple closed curve

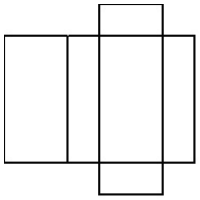
a. A quadrilateral with all sides congruent is a __

b. The polyhedron illustrated at right is a ___

2b 

c. The set of all points in a plane equally distant from a given point *P* is a ___

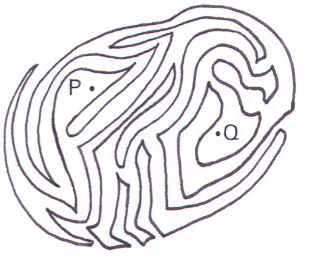
d. The figure at right can be folded up into the polyhedron known as a ___

2d 

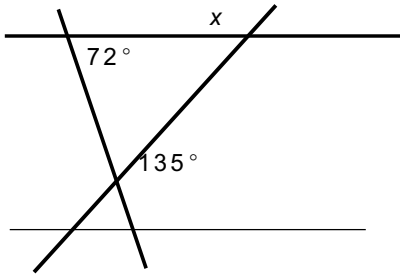
e. A simple closed curve consisting of line segments is a ___

f. A parallelogram with an interior angle measuring 90° is a ___

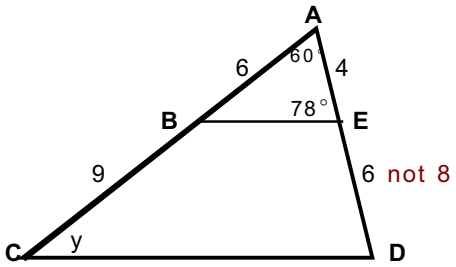
(3) 3. In the illustration at right, A & B are tangled with a simple closed plane curve. Are the points A and B on the same side of the curve? ___
Explain (briefly) how you know:



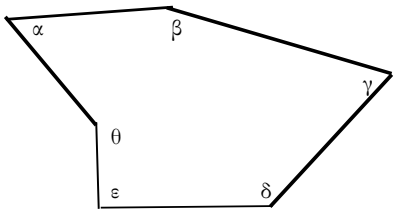
(5) 4. Find the measure of the angle marked *x*.



(10) 5. Given the triangle and measurements illustrated, **find** the measure of the angle marked *y*.
Explain what triangles are similar and how you know they are.



(10) 6. *Without* using a protractor, *showing your work*, find the **sum** of the measures of the interior angles in the polygon at right:

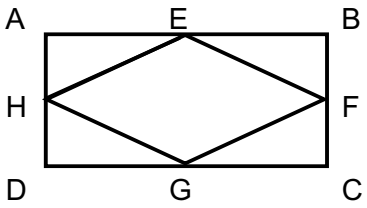


$m(\angle\alpha) + m(\angle\beta) + m(\angle\gamma) + m(\angle\delta) + m(\angle\varepsilon) + m(\angle\theta) =$ _____

What is the measure of one interior angle of a **regular hexagon**?

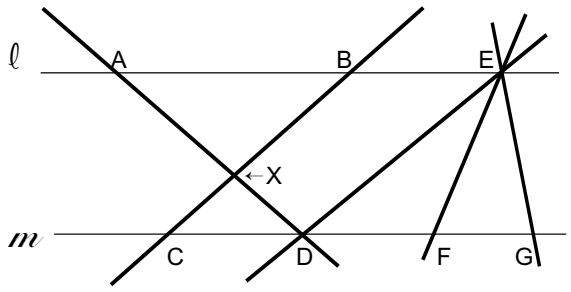
(5) 7. **Explain** why there can be no regular convex polyhedra with faces which are hexagons. Be specific, but concise.

(10) 8. Given that EFG & H are the midpoints of the sides of rectangle ABCD, prove that quadrilateral EFGH is a rhombus.
You can mark the illustration to supplement your statements.

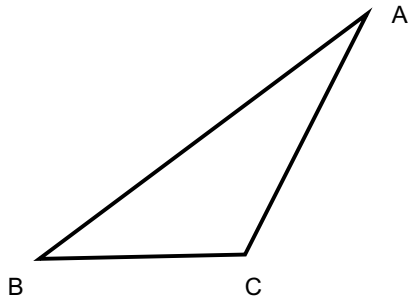


(5) 9. A monument casts a 60-meter shadow at the same time that a 6-foot post casts a shadow 4 feet long. How tall is the monument?

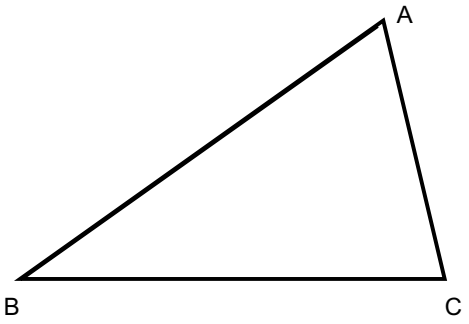
(5) 10. Given $\ell \parallel m$ Name two similar triangles; **explain** concisely what guarantees that the triangles are *similar*.



(7) 11. Carefully illustrate (sketch) the three altitudes of the triangle ABC.
Where do their extensions meet?



(10) 12. *Showing all necessary marks*, **construct the altitude** of ABC that contains the point A.



(8) 13. *Showing your work,* carefully construct a circle containing the points A, B, and C below.

(8) 14. *Showing all necessary marks*, **construct** the parallelogram that **contains the sides given**.