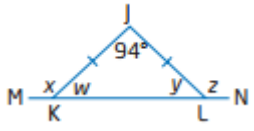
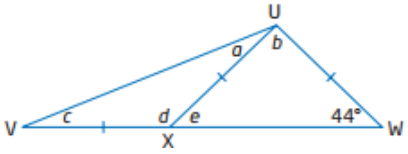
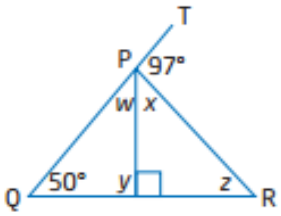
First name: _____ Last name:_____ ID: _____

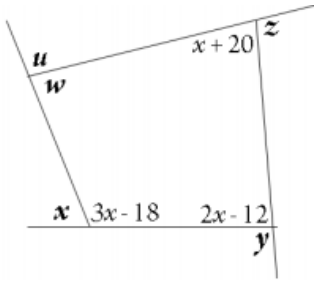
Geometry (1) Homework

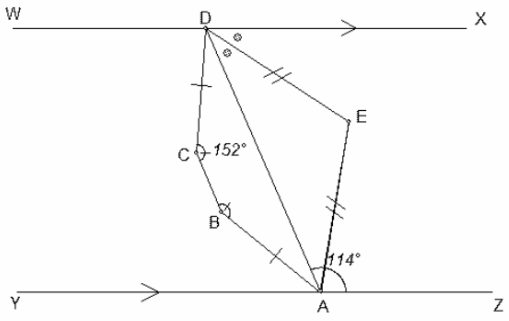
1. Find the unknown angles.

a. 

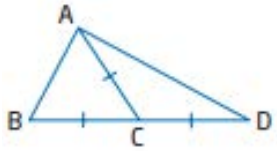
b. 

c. 

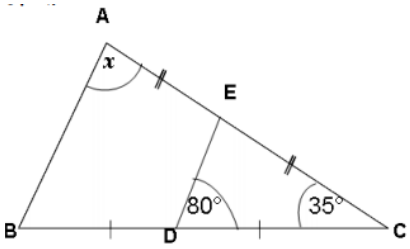
d. 

e. Find ∠ CDE 

2. Calculate the sum of ∠ABC and ∠ADC.



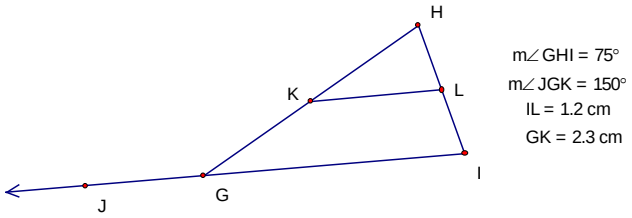
3. Find the value of x.



4. K is a midpoint of GH and L is a midpoint of IH. GK = 2.3cm and IL = 1.2cm.

a) Find the length of HK and HI.

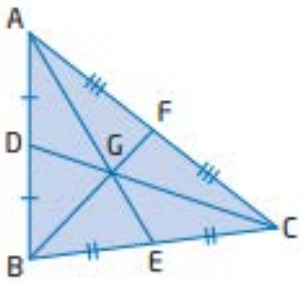
b) Find the measure of ∠HKL and ∠HLK.



c) Find the length of KL if GI is 5 cm.

5. Points D, E, and F are the midpoints of the sides of △ABC. Show that the area of △DEF is one quarter of the area of △ABC.

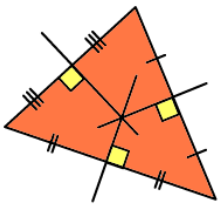
6. The three medians of this triangle intersect at point G. This point is called a **Centroid**.
a) Show that △BEG has the same area as △CEG.



b) Can you use your answer to part a) to show that the area of △ADG is equal to the area of △ BDG and that the area of △AFG is equal to the area of △CFG? Explain.

c) Show that all six of the triangles in part a) and part b) have the same area.

7. **Right bisector** is a line perpendicular to a line segment and passing through its midpoint. There are always 3 right bisectors in a triangle. (see diagram below)
Is the intersection of the right bisectors of the sides of a triangle always inside the triangle? Support your answer with a diagram.



8. Determine the sum of interior angles of a regular pentagon.

9. If each side of a regular hexagon is 2, determine the distance from center to one side.

10. a) Determine the number of sides of each convex polygon with the interior angle of 170 100˚.

b) If the polygon is regular, what is the measure of each interior angle?