Circle the LETTER of the correct answer for #1-3.

(7 pts)1. Use the information given about the angles of triangles I, II, and III to determine which, if any, of the triangles are similar.

I) 70° and $45^\circ\,50'$ II) $64^\circ\,10'$ and $45^\circ\,50'$ III) 70° and $64^\circ\,50'$

A. I and II only

B. II and III only

C. I and III only

D. I, II and III

E. No similarity exists

(7 pts)2. Using a broken ruler that is missing the first several inches, a student sets the ruler against a line segment such that the endpoints of the segment are at $4\frac{5}{8}$ and $9\frac{3}{16}$ respectively. What is the length of the line segment?

A. $4\frac{1}{2}$ inches

B. $5\frac{1}{4}$ inches

C. $4\frac{9}{16}$ inches

D. $5\frac{1}{8}$ inches

E. $4\frac{3}{16}$ inches

(7 pts)3. One polyhedron has surface area 192 cm^2 and volume 128 cm^3. Find the surface area and volume of the polyhedron's image for a size change with scale factor $\frac{3}{4}$.

A. SA: 108 cm^2 V: 32 cm^3

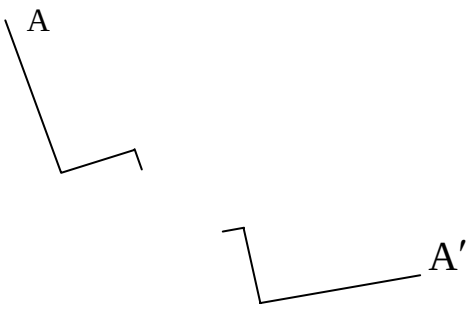
B. SA: 48 cm^2 V: 32 cm^3

C. SA: 48 cm^2 V: 54 cm^3

D. SA: 36 cm^2 V: 32 cm^3

E. SA: 108 cm^2 V: 54 cm^3

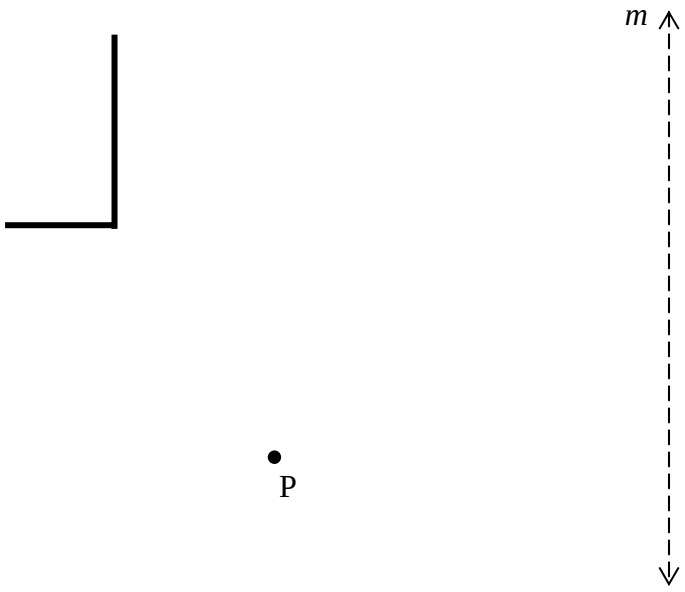
(8 pts)4. Find and name the single rigid motion that would take A to A′. Briefly describe your process.



(8 pts)5. Find the composition of the two rigid motions:

(reflection in line *m*) o (clockwise rotation of 70º with center P).

Mark your final image *F*.



Which single rigid motion would take the original figure to *F*? _____

(8 pts)6. Identify and describe all the symmetries possible for the diagram shown. Assume that the pattern continues to the right and left indefinitely. Two answers are completed already.

Next time use a picture like p 515 #1c

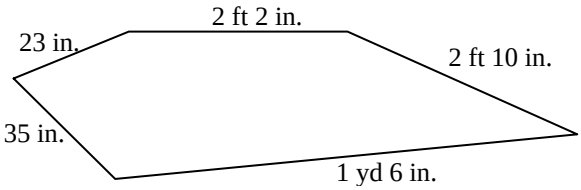
Rotation: **no** **yes** 180º with center of rotation at the center of any star or at the point where stars touch

Translation: **no** **yes** horizontally to the left or right the width of a star or any number of stars

Reflection: **no** **yes**

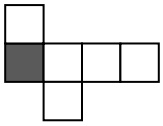
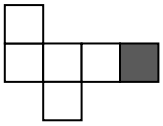
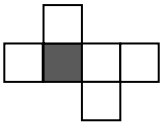
Glide-relfection: **no** **yes**

(10 pts)7. Sections of garden edging come in sections 27 inches long and cannot be bent. How many sections would be needed to surround a flower garden shaped like the drawing below. Assume that pieces less than 6 in. long are too short to be useful. Show and label all steps of your work. Present your work in an orderly fashion.



Total number of sections needed: _____

(6 pts)8. Suppose that the lower half of a cube is painted. Finish shading each net so that it could fold up to make a half-painted cube. The bottom face of the cube is already shaded in each net.

(5 pts)9. Select the most appropriate unit from A-C for measuring each characteristic listed below.

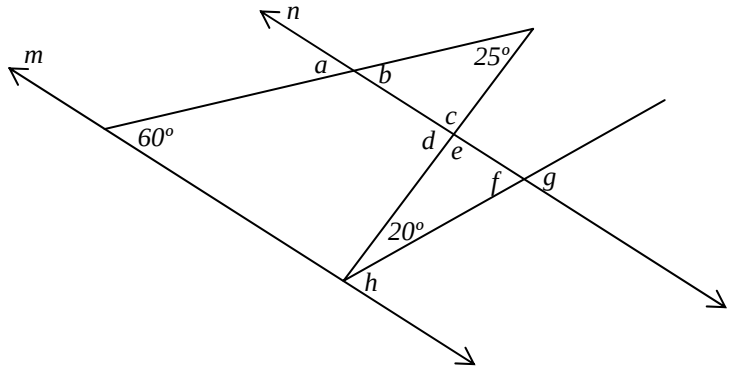
A. cubic centimeters B. centimeters C. square centimeters

_____ A sector of a circle _____ How far a child can throw a ball

_____ How much of an apple you ate _____ The surface area of a cube

_____ The length of the pencil you are using

(12 pts)10. For the figure shown, lines *m* and *n* are parallel.



Use the lettered angles to:

a) name a pair of vertical angles: _____ and _____

b) name a pair of corresponding angles: _____ and _____

c) name a pair of alternate interior angles: _____ and _____

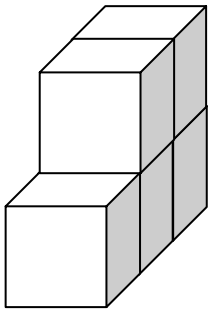
Give the measure of angles *c*: _____ *d*: _____ *f*: _____ *h*: _____

(8 pts)11. A polygon has a perimeter of 18 centimeters with each side having a length that is a whole number of centimeters. For the given polygon, list all possible combinations of lengths.

Rectangle

Triangle with one side having length 6 cm

(6 pts)12. Determine the volume and surface area of the shape shown if the cubes are 1 ft on each edge.



Volume: _____

Surface area: _____

What is the volume in **cubic yards**? _____ yd^3

(8 pts)13. Complete the following conversions. Do not use decimals in your work or answers.

a. $2\frac{1}{2}$ pt = _____ qt

b. $1\frac{1}{3}$ gal = _____ qt

c. 5 tsp = _____ Tbsp

d. 3 c = _____ gal