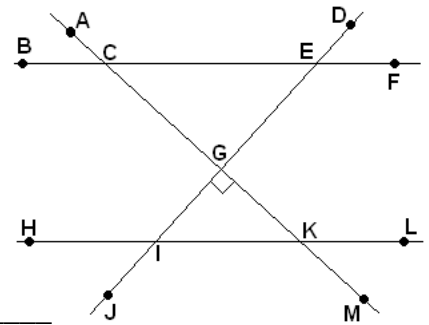


**Simplify all answers and show your work!**

- The sum of two complementary angles is \_\_\_\_\_ degrees.
- The sum of two supplementary angles is \_\_\_\_\_ degrees.
- For corresponding angles or alternate interior/exterior angles to be congruent, a transversal must cross what kind of lines? \_\_\_\_\_
- Congruent triangles are the same \_\_\_\_\_ and have the same \_\_\_\_\_.
- What is the supplement of a  $38^\circ$  angle?
- What is the complement of a  $38^\circ$  angle?

Use the figure to the right to answer problems 7 - 13. Assume that  $\overline{BF} \parallel \overline{HL}$  and  $m\angle KGI = 90^\circ$ .

- List two right angles. \_\_\_\_\_
- List a pair of vertical angles. \_\_\_\_\_
- If  $m\angle DEF = 42^\circ$ , find the measures of the following.
  - $m\angle CEG =$  \_\_\_\_\_
  - $m\angle ECG =$  \_\_\_\_\_
  - $m\angle ACB =$  \_\_\_\_\_
  - $m\angle BCG =$  \_\_\_\_\_
  - $m\angle GKL =$  \_\_\_\_\_
  - $m\angle GKI =$  \_\_\_\_\_
  - $m\angle GIK =$  \_\_\_\_\_
  - $m\angle GIH =$  \_\_\_\_\_
  - $m\angle MKI =$  \_\_\_\_\_

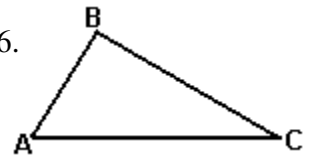


Fill in the blanks with corresponding, vertical, alternate exterior, alternate interior, complementary, or supplementary.

- $\angle ACE$  and  $\angle ACB$  are \_\_\_\_\_ angles.
- $\angle GIK$  and  $\angle GKI$  are \_\_\_\_\_ angles.
- $\angle ECK$  and  $\angle CKH$  are \_\_\_\_\_ angles.
- $\angle BCG$  and  $\angle HKM$  are \_\_\_\_\_ angles.

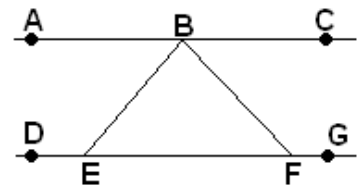
Given  $\triangle ABC$  below where  $m\angle BAC = 61^\circ$  and  $m\angle BCA = 40^\circ$ , answer problems 14 – 16.

- Find  $m\angle ABC =$  \_\_\_\_\_.
- Which side is the longest? \_\_\_\_\_
- Which side is the shortest? \_\_\_\_\_



Given the lines to the right where  $\overline{AC} \parallel \overline{DG}$ ,  $m\angle ABE = m\angle CBF = x^\circ$  and  $m\angle EBF = 3x^\circ$ , find the following.

- $x =$  \_\_\_\_\_
- $m\angle ABE =$  \_\_\_\_\_
- $m\angle CBF =$  \_\_\_\_\_
- $m\angle EBF =$  \_\_\_\_\_
- $m\angle BEF =$  \_\_\_\_\_
- $m\angle BFE =$  \_\_\_\_\_
- $m\angle BED =$  \_\_\_\_\_
- $m\angle BFG =$  \_\_\_\_\_



Determine whether or not it is possible to make a triangle having the given side lengths. (Yes or No)

18. 4, 7, 5 \_\_\_\_\_      19. 1.5, 3.9, 5.1 \_\_\_\_\_      20. 15, 24, 52 \_\_\_\_\_

21. A paper snow-cone cup is in the shape of a cone. It has a diameter of 14 cm and a perpendicular height of 17 cm.

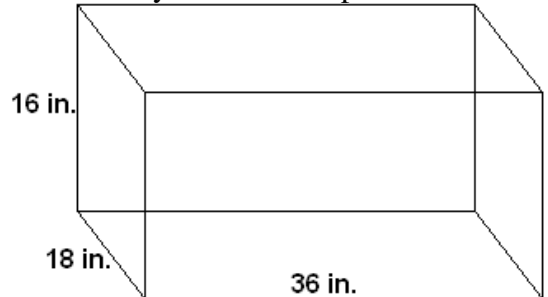
- a) What is the radius of the base of the cone?      b) Find the volume of the cone.      c) What is the slant height of the cone?



d) What is the surface area of the cone? (**Don't** include the bottom!)

22. A rectangular glass fish aquarium has dimensions of 36 inches by 18 inches by 16 inches as pictured. Answer the following.

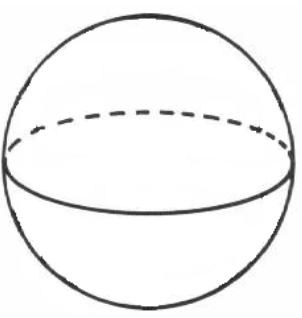
- a) What is the area of the bottom of the aquarium?  
b) What is the combined area of the front, back, and two sides?



c) How much glass is needed to make this aquarium? (**Don't** include the top, but include the bottom!)

d) How many gallons of water will this aquarium hold? (1 gallon = 231 in<sup>3</sup>)

23. The circumference of a volleyball is 66 cm around its center.



- a) What is the radius of the volleyball?      b) What is the volume of the volleyball?

24. The measure of  $\angle A$  is  $(4x - 35)^\circ$ . The measure of  $\angle B$  is  $(2x + 38)^\circ$ . If  $\angle A$  is the complement of  $\angle B$ , what are the measures of the two angles?