9.3

Student's Worksheet

Name: ..... *Date:* .....

TRIANGLES

A. *Drawing Isosceles, Equilateral, and Right Triangles*

PROBLEM 6

Draw ΔABC having the right angle at B with AB = 3 cm and BC = 4 cm.

a. Sketch it from the given elements and mark them.

b. What step will you do first to draw ΔABC? Drawing side $\overline{AB}$, side $\overline{BC}$ or $\angle B$?

c. What will you do next?

d. Name all steps you have done until ΔABC is drawn. Then state the tools you have used to draw ΔABC.

e. Is there any other way to draw ΔABC? Explain it.

Solution:

PROBLEM 8

Draw an isosceles triangle KLM with top angle at L sizes 40° and $KL = LM = 5$ cm.

a. Sketch it from the given elements and mark them.
b. What step will you do first to draw ΔKLM? Drawing side $\overline{KL}$, side $\overline{LM}$ or $\angle L$?
c. What will you do next?
d. How do you draw side $\overline{KL}$ equal to $\overline{LM}$?
e. Write all steps you have done until ΔKLM is drawn. Then state the tools you have used to draw ΔKLM.
f. What kind of triangle is ΔKLM, based on the measures of its angles and the lengths of its sides?
g. Is there any other way to draw ΔKLM? Explain.

Solution:

PROBLEM 10

Draw equilateral triangle XYZ with sides 5 cm long.

a. Sketch and mark the sides.

b. What step will you do first to draw ΔXYZ ? Drawing side $\overline{XY}$, side $\overline{YZ}$ or $\overline{XZ}$?

c. What will you do next?

d. How do you draw equal sides?

e. Write all steps you have done until ΔXYZ is drawn. Then state the tools you have used to draw ΔXYZ.

f. What kind of triangle is ΔXYZ, based on the measures of its angles and its length of its sides?

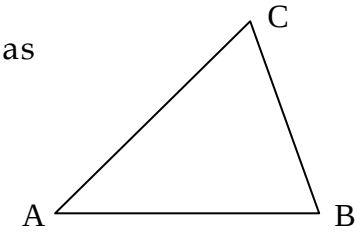
g. Is there any other way to draw ΔXYZ? Explain it.

Solution:

B. <u>Drawing Perpendicular Bisector, Angle Bisector, Height, and Median</u>

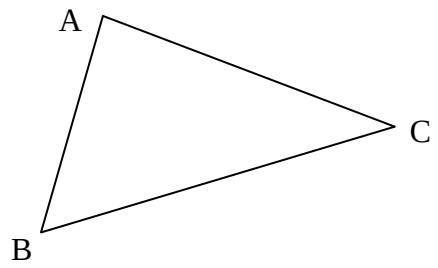
Use a ruler and a compass.

1. a. Draw all heights or altitudes of triangle ABC as the figure on the right.
   b. What can you conclude about the heights of triangle ABC?



<u>Solution:</u>

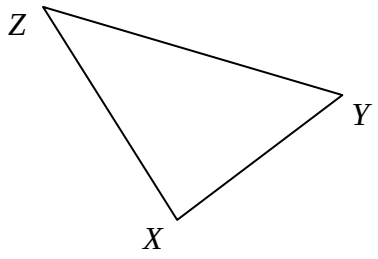
2. a. Draw all angle bisectors of triangle ABC as shown in the figure on the right.
   b. What can you conclude from the angle bisectors triangle ABC?



<u>Solution:</u>

c. Suppose point O is the intersecting point of the three angle bisectors of triangle ABC, then draw a circle with the center O that intercepts the three sides of the triangle.

(***<u>NOTE:</u>*** The circle is an incribed circle of triangle ABC.)



3. a. Draw all perpendicular bisectors of triangle XYZ on the left.
   b. What can you conclude about the three perpendicular bisectors in triangle XYZ?

c. Suppose point O is the intersecting point of the three symmetry axes of triangle XYZ, then draw a cricle with the center O that treats the three vertices of the triangle.

(***NOTE:*** The circle is an exterior circle of triangle ABC.)

Solution:

4. Draw a parallelogram with 3 cm long dan 5 cm wide that forms a 60 degree angle. Measure the height of the parallelogram and calculate the area.

Solution: