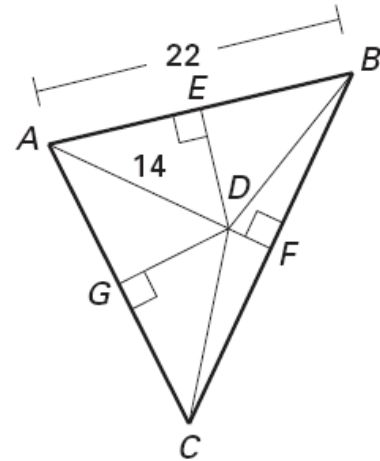


Perpendicular Bisectors

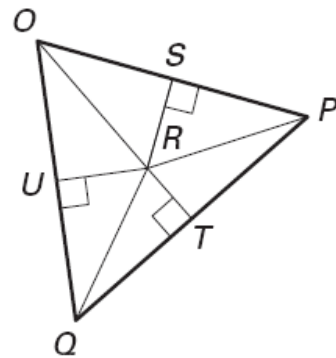
Use GSP and TI-84 graphing calculator to explore and solve the following questions.

1. The perpendicular bisectors of $\triangle ABC$ meet at point D.
 - a. Find DB
 - b. Find AE
 - c. Find ED (Hint: Use the Pythagorean Theorem). Write your answer in simplified radical form.



2. R is the circumcenter of $\triangle OPQ$. $OS = 10$, $QR = 12$, and $PQ = 22$.

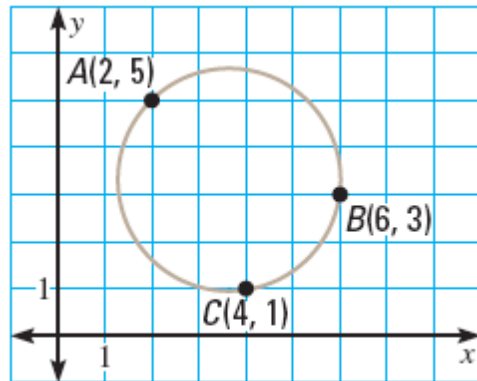
- a. Find OP
- b. Find RP
- c. Find OR
- d. Find TP
- e. Find RT



Extension:

A *mycelium* fungus grows underground in all directions from a central point. Under certain conditions, mushrooms sprout in a ring at the edge. The radius of the mushroom ring is an indication of the mycelium's age.

Suppose three mushrooms in a mushroom ring are located as shown. Make a table in your calculator and enter the points in the diagram. Make a scatterplot of the points *A*, *B*, and *C*. Connect the points to make triangle *ABC*. Each unit will represent 1 foot.



Use the GSP to graph and solve the problem.

- a) Find the radius of the mushroom ring.
(Hint: find the circumcenter.)

Radius = _____

- b) Suppose the radius of the mycelium increases at a rate of about 8 inches per year. Estimate its age.

Age = _____