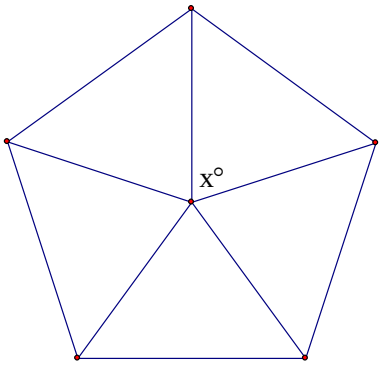
11.3 Area of a Regular Polygon

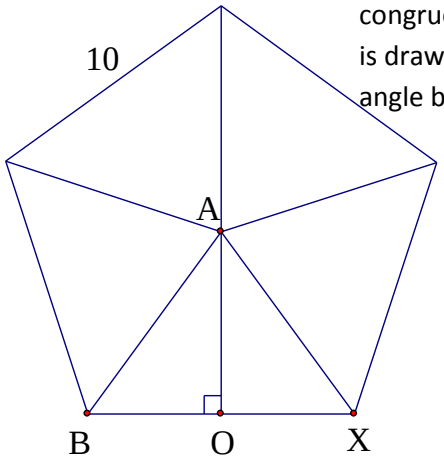
Name _____ Hr ____



1) This is a regular pentagon. What is the measure of the angle at x?

2) In just a few words, how did you find that measure?

Each of the spokes such as AB and AX is called a radius of the regular polygon because each would be a radius for the circle circumscribed about the polygon. They are all congruent. That makes each triangle an isosceles triangle. The segment connecting A to O is drawn to the midpoint of BX. For an isosceles triangle the median is also an altitude and angle bisector so we get congruent angles at the vertex and right angles at the base.

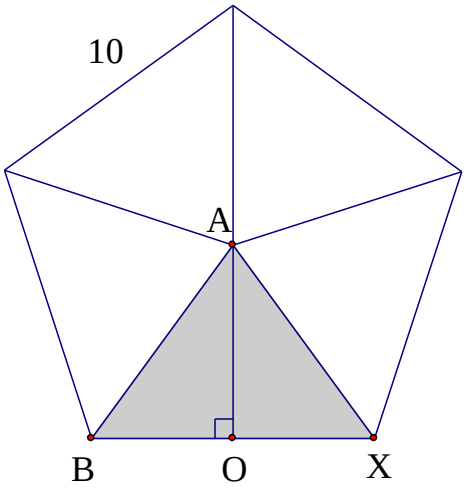


3) How long is BO ?

4) What is m∠BAO ?

What is m∠ABO ?

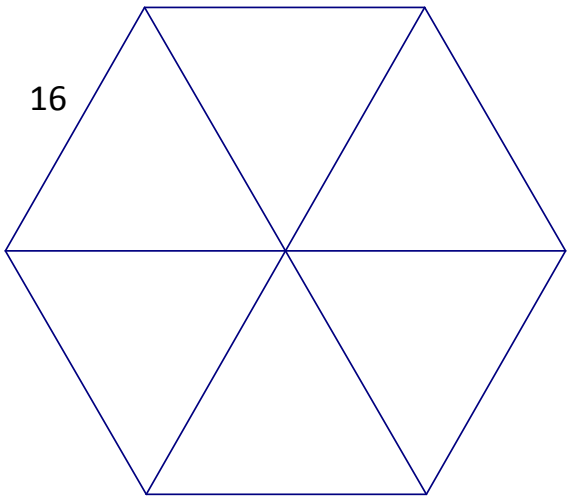
5) Use the tangent function and m∠ABO and length BO to find the length AO.



6) What is the base length of ΔABX ?

7) What is the height of ΔABX ?

8) Find the area of ΔABX.

9) Since there are five of the same triangle, find the area of the pentagon by multiplying your answer to #8 by five.

Try the same process to find the area for this regular hexagon.