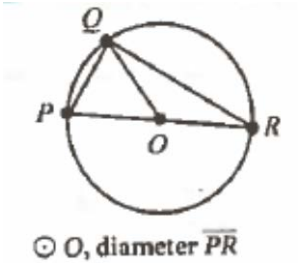
Math 3301 Foundations of Geometry
Unit III Practice Test **Name _____**

1. Find the diameter of a circle with radius 2.6 cm.

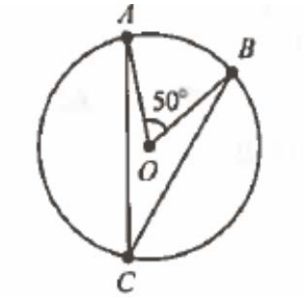
2. Refer to the diagram.



(a) Find m<P if m(arc PQ) = 70˚.

(b) Find m<PQR.

3. Refer to the diagram of circle O.



(a) What is <AOB called with respect to the circle?

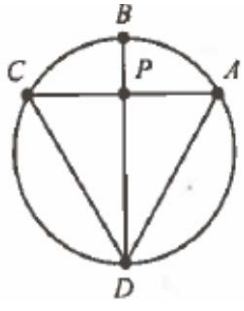
(b) What is <ACB called with respect to the circle?

(c) What is the measure of arc AB?

(d) What is the measure of arc ACB?

(e) What is the measure of <ACB?

4. Refer to the diagram.

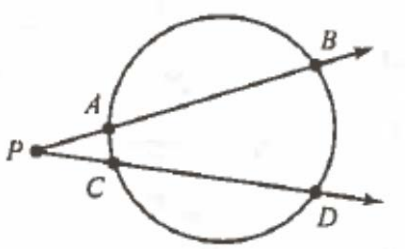


(a) If m(arc BC) = 56˚ and m(arc AD) = 132˚, find m<BPC.

4. (b) If CD = DA and m(arc CD) = 135˚, find m(arc DA).

5. Refer to the diagram.

(a) If m(arc BD) = 68˚ and m(arc AC) = 28˚, find m<P.

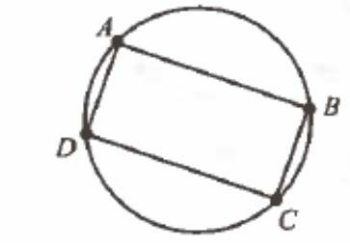


(b) If PB = 12 ft, PA = 3 ft, and PC = 4 ft, find PD.

For #6-7, write a two-column or a flowchart proof.

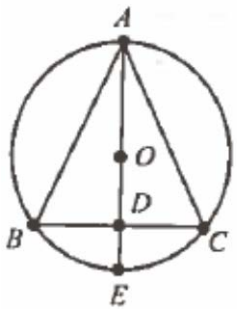
6. Given: ABCD is a rectangle.

Prove: $\overset{\frown}{AB} \cong \overset{\frown}{CD}$



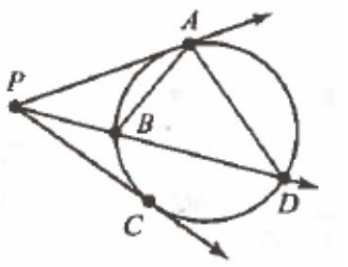
7. Given: $\overline{AD} \perp \overline{BC}$ and $\overline{AD}$ contains the center O

Prove: $\overset{\frown}{AB} \cong \overset{\frown}{AC}$



8. Refer to the diagram.

(a) If m(arc AB) = 66˚, find m<PAB.



(b) If m<ADB = 35˚, find m<PAB.

(c) If m(arc AD) = 130˚ and m(arc AB) = 64˚, find m<APD.

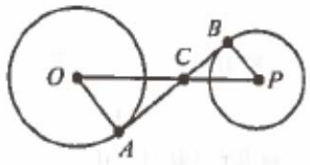
8. (d) If m(arc ABC) = 130˚, find m<APC.

(e) If AP = 20 ft and DP = 30 ft, find BP.

9. Write a two-column or a flowchart proof.

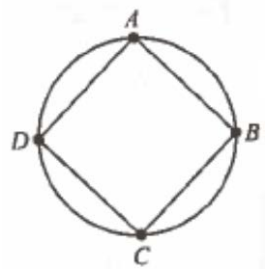
Given: $\overline{AB}$ is a common internal tangent to the circles centered at O and P, and $\overleftrightarrow{OP}$ is the line of centers

Prove: $\angle O \cong \angle P$



10. Refer to the diagram.

(a) If m<D = 88˚, find m<B.



(b) If $\overline{AD} \parallel \overline{BC}$ and AD = BC, find m<D.

11. Inscribe a square in a circle. Bisect a side of the square, and use the result to inscribe a regular octagon in the circle.

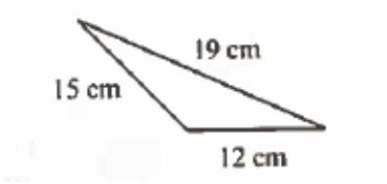
12. What is the measure of each central angle in a regular 18-gon?

13. How many sides does a regular polygon have if each central angle measures 40˚.

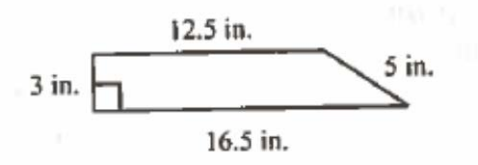
14. Construct a regular hexagon, and inscribe a circle in it.

15. Construct a tangent to a circle from a point outside the circle.

16. Find the area and perimeter of the given figure. Round the area to the nearest hundredth.



17. Find the area and perimeter of the given figure.



18. Find the area of an equilateral triangle with a perimeter of 36 inches.

19. If the side of a square is doubled, how does the area change?

20. A room has four rectangular walls each measuring 14 ft by 8 ft. Two of the walls have windows measuring 4 ft by 3 ft. If the walls are to be given two coats of paint and 1 gallon of paint covers 300 ft^2, how many gallons will be needed for the job? Round up to the next gallon.

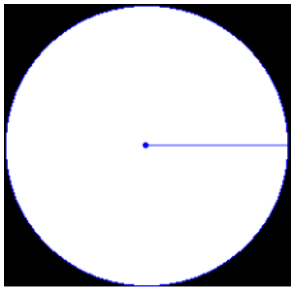
21. Find the area of a rhombus with diagonals measuring 14 cm and 18 cm.

22. Find the area of a circle with diameter 2.6 cm. Round to the nearest tenth.

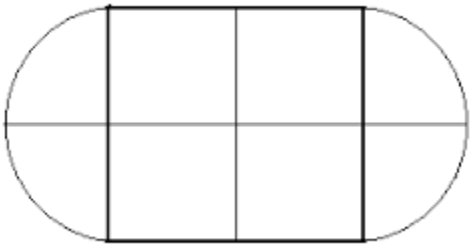
23. Find the area and circumference of a circle with radius 5 ft. Leave the answers in terms of π.

24. A machine part is in the shape of an equilateral triangle 10 inches on a side. A hole with diameter 3 inches is drilled in the center of the part. To the nearest tenth, what is the area of the remaining metal?

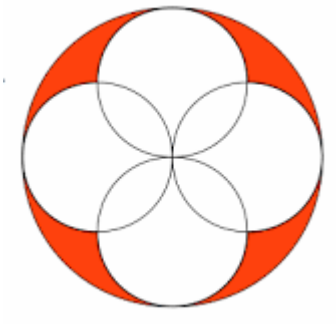
25. Refer to the diagram. If the square has sides which measure 8 inches, find the total area of the four shaded regions.



26. If the square in the diagram has sides which measure 100 yd, find the circumference and area of the figure. Leave the answers in terms of π.

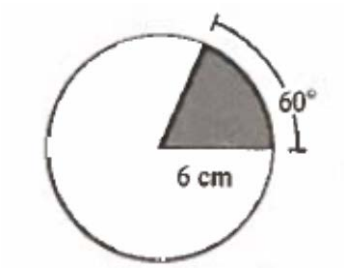


27. What is the area of the shaded region? The large circle's diameter is 75 cm.

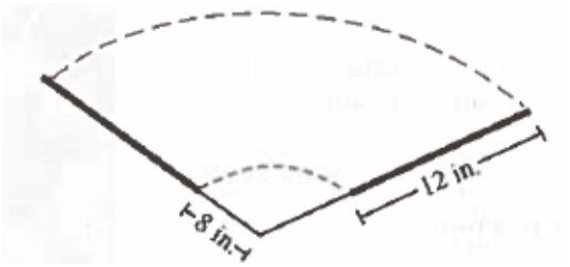


28. Find the area of a segment of a circle formed by two radii measuring 10 cm that form a 60˚ central angle. Give the answer correct to the nearest tenth of a square centimeter.

29. Find the actual area and perimeter of the shaded sector. Leave the answers in terms of π.



30. The windshield wiper on the back hatch of an SUV rotates through a 120˚ angle from the beginning to the end of its sweep. The wiper blade touches the windshield 8 inches from the point of rotation. Find the area cleaned by the wiper blade.



31. A regular polygon has a perimeter of 120 ft and an apothem of 7 ft. Find its area.

32. Find the area of a regular hexagon with sides 30 yd. Give the area correct to the nearest tenth of a square yard.

33. Assume a stop sign is a regular octagon. A side measures 12.5 in., and a radius is 16.25 in. What is the actual area of the surface of a stop sign?