Name: _____ Hour:_____ 12.7 Review and Applications of Circles

Show your work by filling out the diagrams.

In circle P, AC is a diameter. Find the following:

1. x

2. $m\angle B$

3. $m\angle BCA$

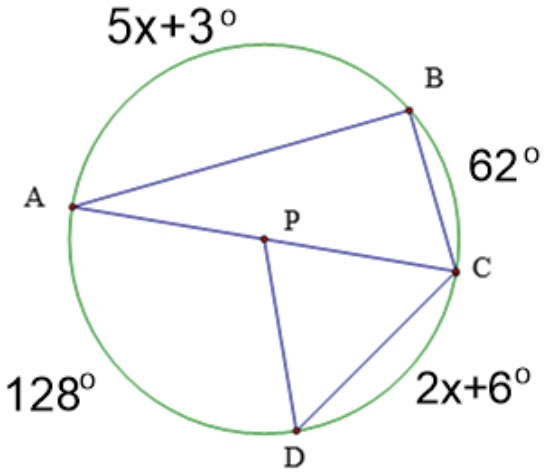
4. mAB

5. $m\angle PCD$

6. $m\angle PDC$

7. mDC

8. $m\angle A$



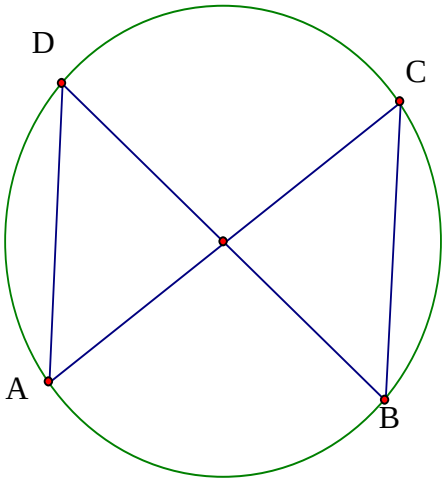
Refer to the circle to answer the following questions.

9. $mAB = 68^\circ$ $m\angle C =$ $m\angle D =$

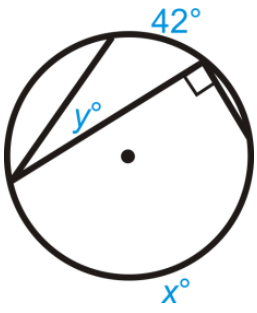
10. $m\angle D = 30^\circ$ $mAB =$ $m\angle C =$

11. $mCD = 87^\circ$ $m\angle B =$ $m\angle A =$

12. $m\angle B = 30^\circ$ $mCD =$ $m\angle A =$



13.



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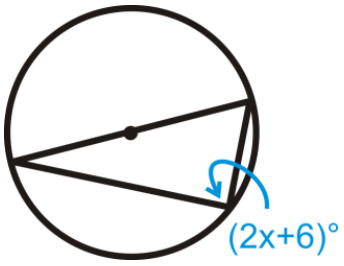
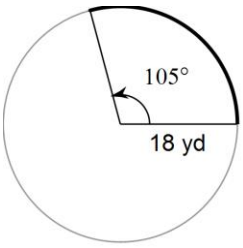
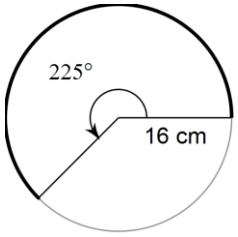


Find the arc length and the area of the indicated sector.

15.

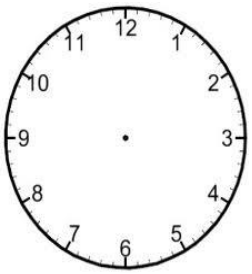


16.



Consider a standard 12 hour clock like the one below with a radius of 5 inches.
Use this to answer questions 17-18. Use the shortest path between the two numbers.

17. It is 12:30. What is the length of the arc between the minute and hour hands?



18. It is 7:20. What is the length of the arc between the minute and hour hands?

A pie has a radius of 4in. Use this information to answer questions 19 & 20.

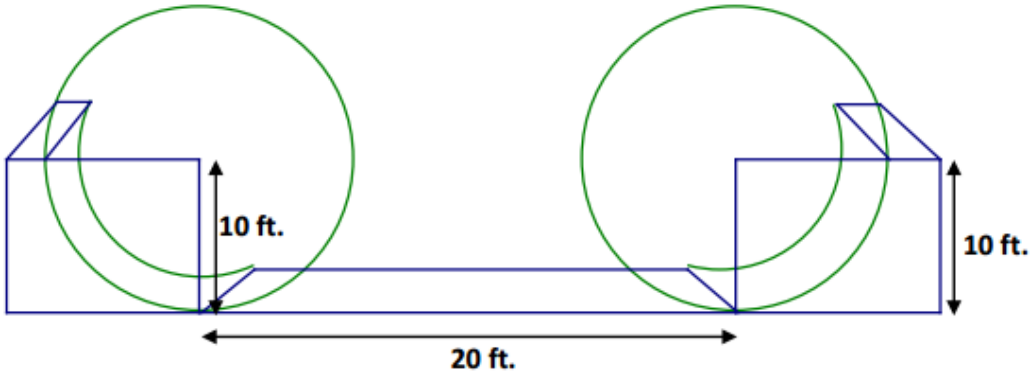
19. You eat two pieces of a pie divided into eight slices. What is the area of the pie you ate?

20. What is the area of half of the pie?

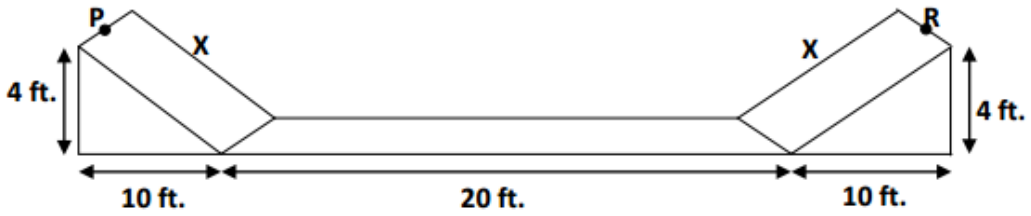
21. An inchworm crawls on the outside of a big round peach. If the peach has a radius of 4 centimeters and a central angle of 270°, how far did the inchworm travel?

22. A garden is in the shape of a semicircle with a diameter of 40 m. What is the area of the garden?

23. Skateboarding has become a popular sport. The parks department is thinking of constructing ramps in some of the local playgrounds. A "half-pipe" ramp is formed by two quarter-circle ramps, each of which is 10 feet high, plus a flat space 20 feet long between the centers. Find the distance a skater travels from the top of one ramp to the top of the other.



24. A second ramp has two straight ramps, each of which is 4 feet high and 10 feet long, with a flat space of 20 feet in between. Find the distance a skater travels from the top on one ramp to the top of the other—from point P to point R. (Hint: Use the Pythagorean Theorem.)

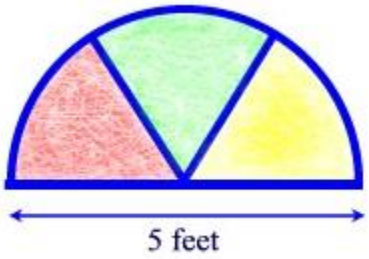


25. A lawn sprinkler located at the corner of a yard is set to rotate through 90° and project water out 30 feet. To the nearest square foot, what area of lawn is watered by the sprinkler?

26. The pendulum in the Franklin Institute is 40 feet long. It swings through an angle of 12°. Find the length of the arc it swings through in inches.

27. The minute hand of a clock is 1.2 centimeters long. To the nearest tenth of a centimeter, how far does the tip of the minute hand move in 20 minutes?

28. A cathedral window is built in the shape of a semicircle. If the window is to contain three stained glass sections of equal size, what is the area of each stained glass section? Round to the nearest foot.



29. You stop for lunch at a local pizza shop where each pizza is cut into 8 slices. Would your hunger be better satisfied with one slice from a 16 inch pizza or two slices from a 12 inch pizza?

30. George is riding a Ferris Wheel. The diameter of the wheel is 250 feet and George travels 50 degrees along the arc of the circle before it stopped to let other riders on. How far did George travel before the Ferris Wheel stopped?