

Area of Regular Polygons & Circles

Worksheet

For #1-5, using a ruler, draw and label the Central Angle, Radius and Apothem on each polygon. Find the missing values. Show all work. Round to the nearest tenth if necessary.

1. A regular octagon with a perimeter of 72in.

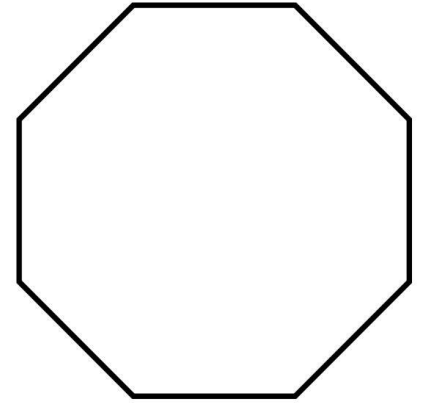
Central Angle = _____

Radius = _____

Apothem = _____

Perimeter = _____

Area = _____



2. A square with an apothem length of 12cm.

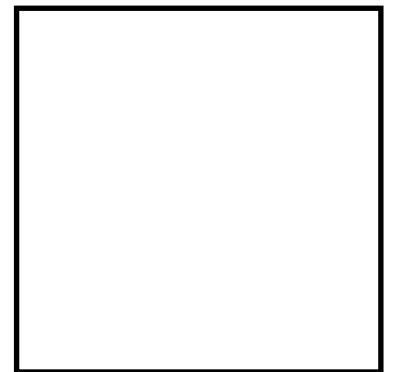
Central Angle = _____

Radius = _____

Apothem = _____

Perimeter = _____

Area = _____



3. An equilateral triangle with a side length of 15in.

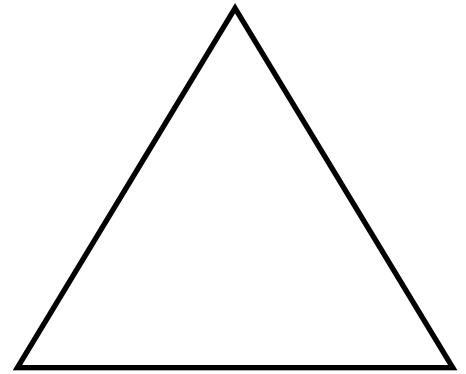
Central Angle = _____

Radius = _____

Apothem = _____

Perimeter = _____

Area = _____



4. A regular hexagon with a radius of 48cm.

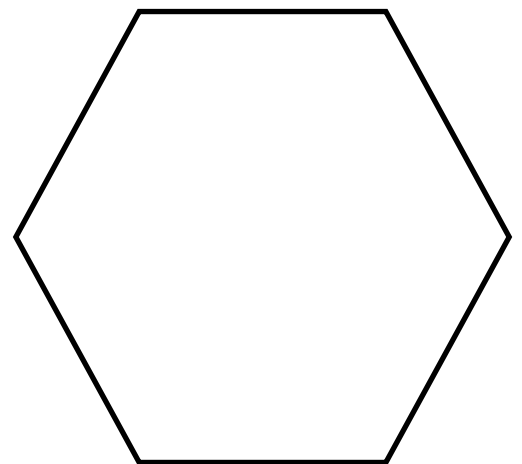
Central Angle = _____

Radius = _____

Apothem = _____

Perimeter = _____

Area = _____



5. A regular pentagon with a perimeter of 10in.

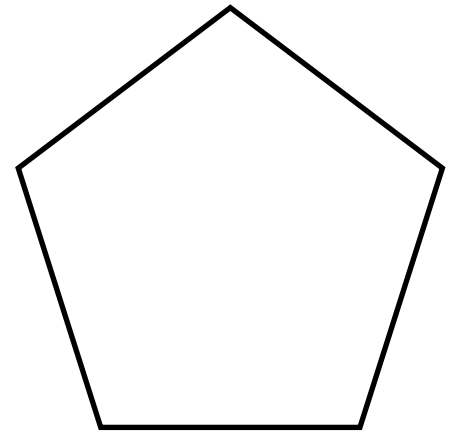
Central Angle = _____

Radius = _____

Apothem = _____

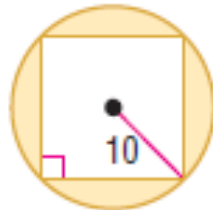
Perimeter = _____

Area = _____

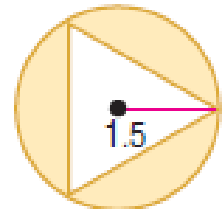


For #6-9, find the area of each shaded region. Assume that all polygons that appear to be regular are regular. Show all work. Round to the nearest tenth.

6. Area_{Shaded} = _____



7. Area_{Shaded} = _____



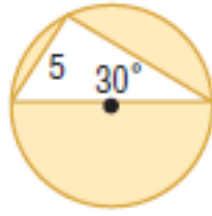
Area_{Circle} = _____

Area_{Circle} = _____

Area_{Square} = _____

Area_{Triangle} = _____

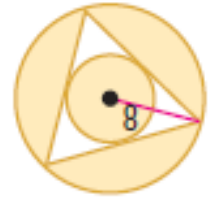
8. $Area_{Shaded} =$ _____



$Area_{Circle} =$ _____

$Area_{Triangle} =$ _____

9. $Area_{Shaded} =$ _____



$Area_{BigCircle} =$ _____

$Area_{Triangle} =$ _____

$Area_{SmallCircle} =$ _____

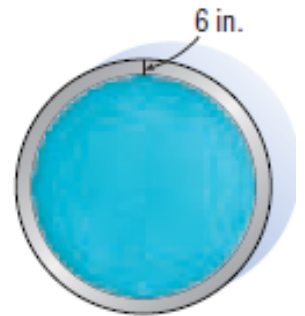
10. A bakery sells single-layer mini-cakes that are 3 inches in diameter for \$4 each. They also have a cake with a 9 inch diameter for \$15. If both cakes are the same thickness, which option gives you more cake for the money, nine mini-cakes or one 9-inch cake? Explain your reasoning.

11. Find the area of the circle given the measure of its circumference is 17π .
Round to the nearest tenth.

Area = _____

12. The area of a circular in-ground pool is approximately 7850 square feet. The owner wants to replace the tiling at the edge of the pool. The edging is 6 inches wide, so she plans to use 6-inch square tiles to form a continuous inner edge. How many tiles will she need to purchase?

Number of Tiles = _____



13. Which of the following can be used to represent the area of the regular polygon shown.
Show all work.

- a) $10y^2 - 5$
- b) $10y^2 + 5y$
- c) $20y^2 + 10$
- d) $20y^2 - 10y$

