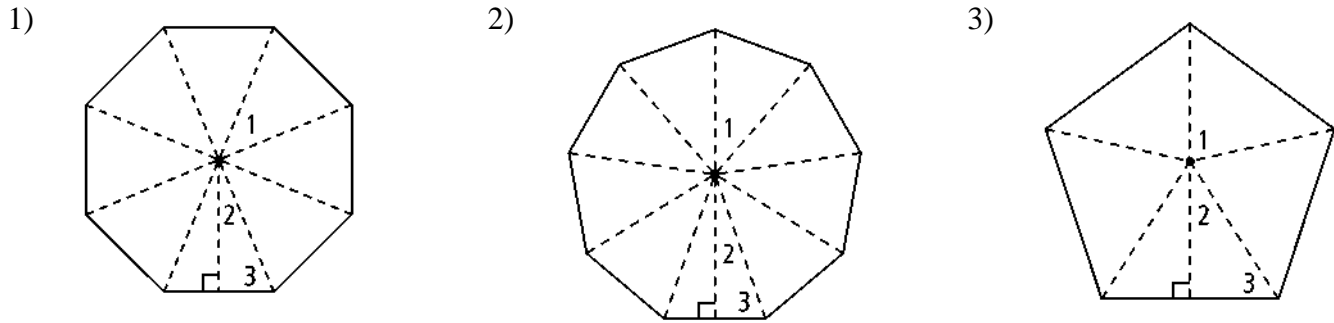


10.6 – Perimeter and Area of Regular Polygons

Each regular polygon has radii and apothem as shown. Find the measure of each numbered angle.



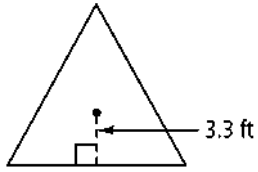
Find the area of each regular polygon with the given apothem a and side length s . Round to the nearest 0.1 if necessary.

- | | | |
|---|--|--|
| 4) Pentagon
$a = 4.9$ in.
$s = 7.1$ in. | 5) Octagon
$a = 20.8$ m
$s = 17.2$ m | 6) Dodecagon
$a = 40.6$ m
$s = 21.7$ m |
|---|--|--|

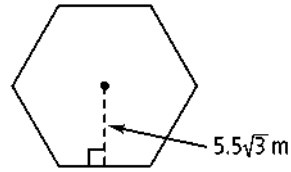
Find the area of each regular polygon. Round to the nearest 0.1 if necessary. (Clue: You may have to use your trigonometry to find some of the necessary measurements)



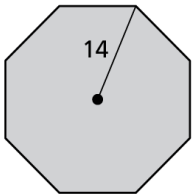
9)



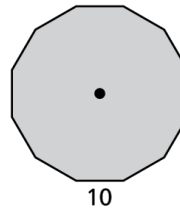
10)



11)



12)

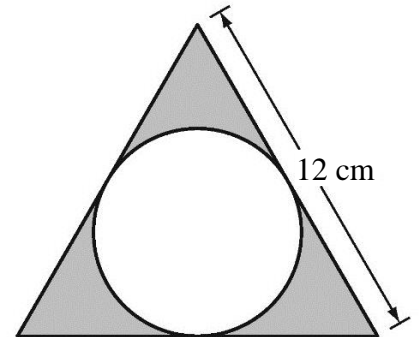


- 13) A stop sign is a regular octagon. Each side of the sign is 12.6 in. long. The area of the stop sign is 770 in.^2 . What is the length of the apothem to the nearest whole number?
- 14) A quilter is cutting fabric for her quilt. She has several pieces of fabric from an old project that are in the shape of regular octagons. She wants to cut the octagons into right triangles. If she divides each octagon into 16 triangles, what is the measure of the non-right angles of each triangle?

- 15) An equilateral triangle has a perimeter of 36 cm. Find its area to the nearest tenth.
- 16) The perimeter of a regular 11-gon is 16.5 meters. Is this enough information to find the area? If so, find the area and explain your reasoning. If not, explain why not.

For #17 & 18, refer to the figure of a circle inscribed in an equilateral triangle. Leave your answer in simplest radical form.

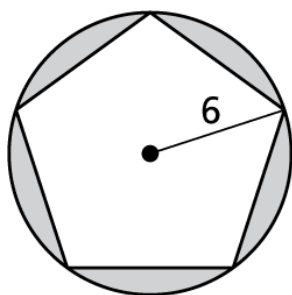
- 17) Find the area of the inscribed circle.



- 18) Find the area of the shaded region.

Find the area of the shaded region. Round to the nearest 0.1 if necessary.

19)



20)

