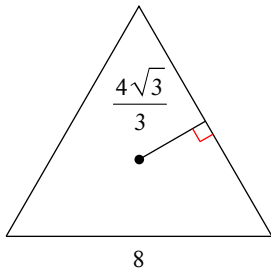


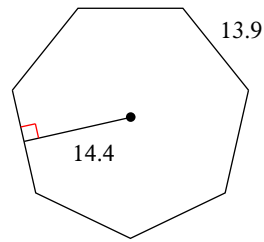
Area of Regular Polygons

Find the area of each regular polygon. Leave your answer in simplest form.

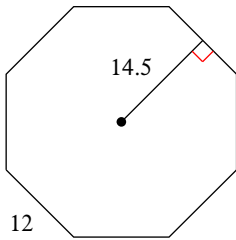
1)



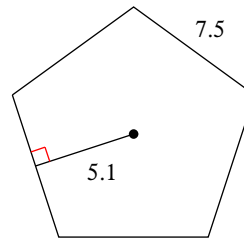
2)



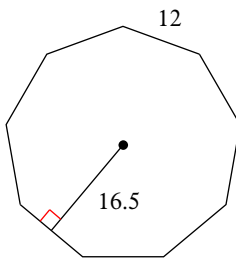
3)



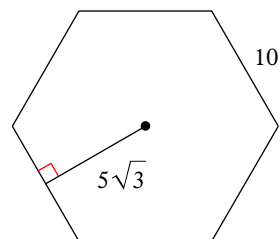
4)



5)



6)



7) pentagon
 apothem = 7.3
 side = 10.6

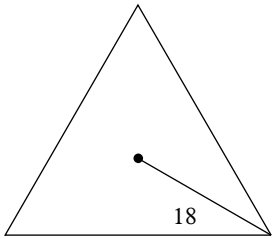
8) triangle
 apothem = 14
 side = $28\sqrt{3}$

- 9) 7-gon
 apothem = 21.8
 side = 21

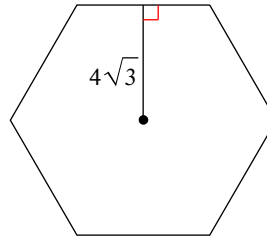
- 10) octagon
 apothem = 14.1
 side = 11.7

Use what you know about special right triangles to find the area of each regular polygon. Leave your answer in simplest form.

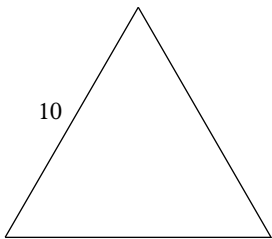
11)



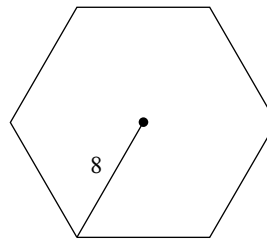
12)



13)



14)



- 15) quadrilateral
 radius = $16\sqrt{2}$

- 16) hexagon
 side = $\frac{16\sqrt{3}}{3}$

Critical thinking questions:

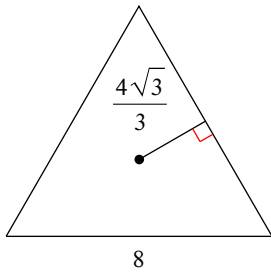
- 17) Find the perimeter of a regular hexagon that has an area of $54\sqrt{3}$ units².

- 18) Can a regular octagon have an area of 10 units²?

Area of Regular Polygons

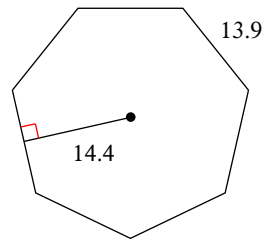
Find the area of each regular polygon. Leave your answer in simplest form.

1)



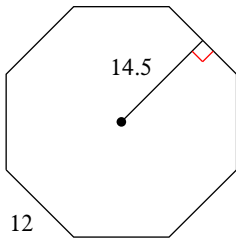
$$16\sqrt{3}$$

2)



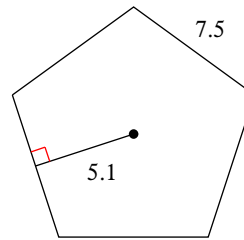
$$700.56$$

3)



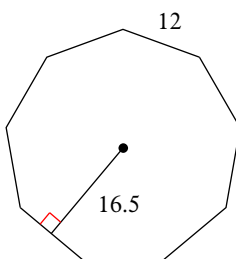
$$696$$

4)



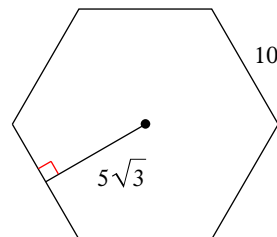
$$95.625$$

5)



$$891$$

6)



$$150\sqrt{3}$$

7) pentagon
 apothem = 7.3
 side = 10.6

$$193.45$$

8) triangle
 apothem = 14
 side = $28\sqrt{3}$

$$588\sqrt{3}$$

- 9) 7-gon
 apothem = 21.8
 side = 21

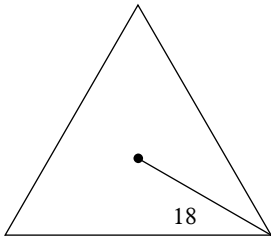
1602.3

- 10) octagon
 apothem = 14.1
 side = 11.7

659.88

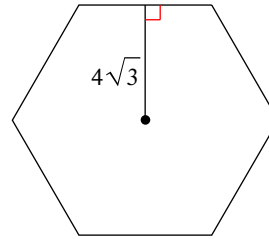
Use what you know about special right triangles to find the area of each regular polygon. Leave your answer in simplest form.

11)



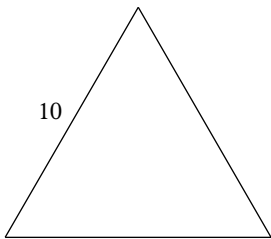
$243\sqrt{3}$

12)



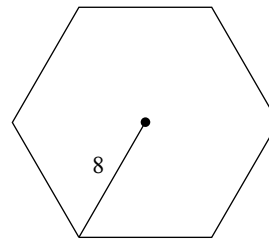
$96\sqrt{3}$

13)



$25\sqrt{3}$

14)



$96\sqrt{3}$

- 15) quadrilateral
 radius = $16\sqrt{2}$

1024

- 16) hexagon
 side = $\frac{16\sqrt{3}}{3}$

$128\sqrt{3}$

Critical thinking questions:

- 17) Find the perimeter of a regular hexagon that has an area of $54\sqrt{3}$ units².

36 units

- 18) Can a regular octagon have an area of 10 units²?

Yes, it just wouldn't have integral length sides.