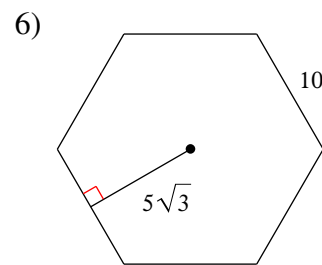
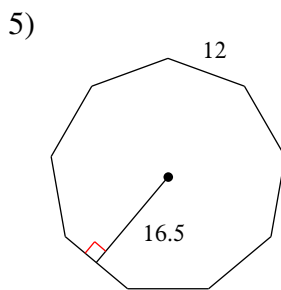
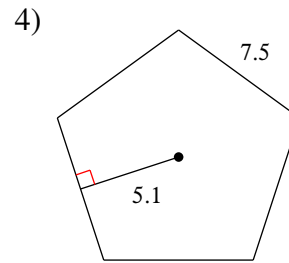
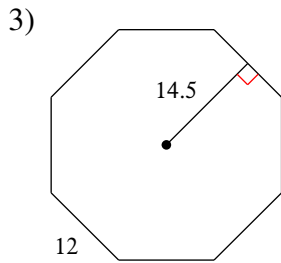
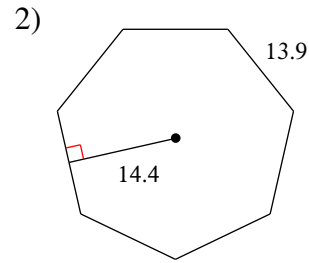
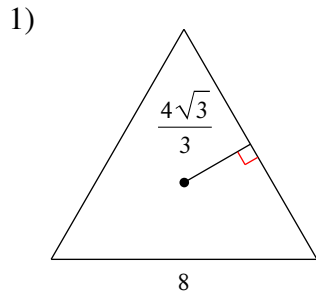


# Area of Regular Polygons

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



7) pentagon  
 apothem = 7.3  
 side = 10.6

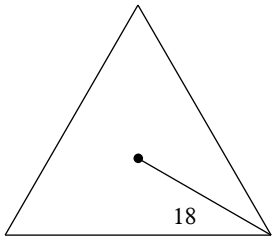
8) triangle  
 apothem = 14  
 side =  $28\sqrt{3}$

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

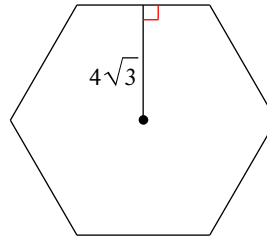
- 10) octagon  
 apothem = 14.1  
 side = 11.7

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

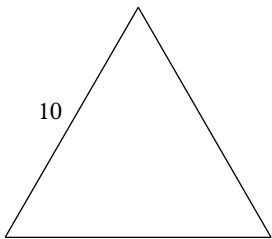
11)



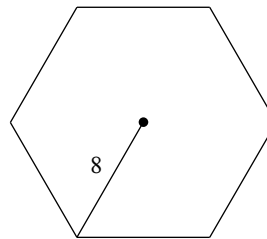
12)



13)



14)



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

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

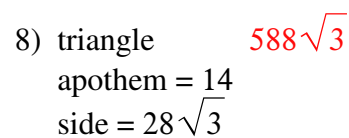
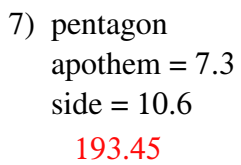
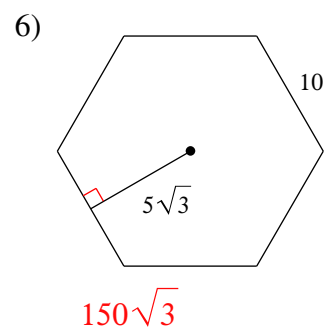
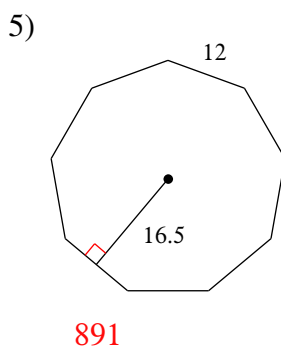
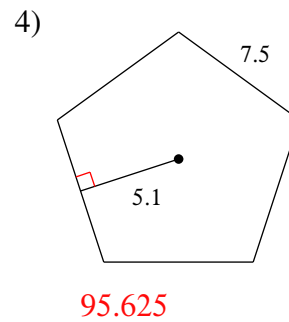
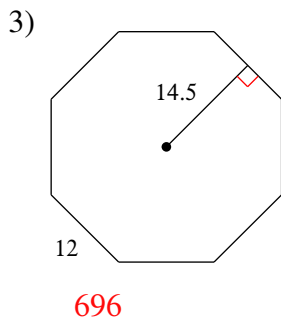
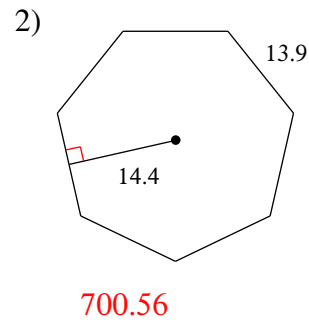
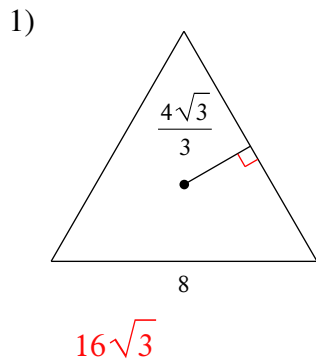
**Critical thinking questions:**

- 17) Find the perimeter of a regular hexagon that has an area of  $54\sqrt{3}$  units<sup>2</sup>.

- 18) Can a regular octagon have an area of 10 units<sup>2</sup>?

# Area of Regular Polygons

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



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

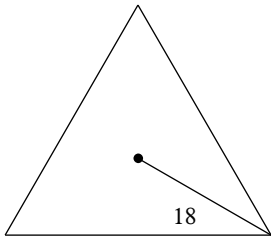
1602.3

- 10) octagon  
 apothem = 14.1  
 side = 11.7

659.88

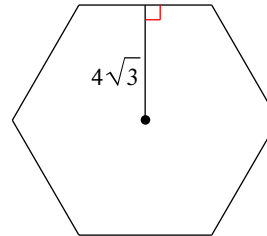
Use what you know about special right triangles to find the area of each regular polygon. Leave your answer in simplest form.

11)



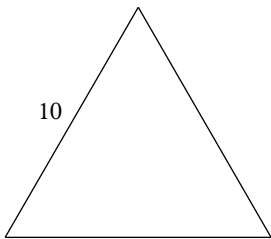
$243\sqrt{3}$

12)



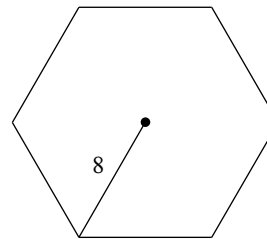
$96\sqrt{3}$

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  $54\sqrt{3}$  units<sup>2</sup>.

36 units

- 18) Can a regular octagon have an area of 10 units<sup>2</sup>?

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