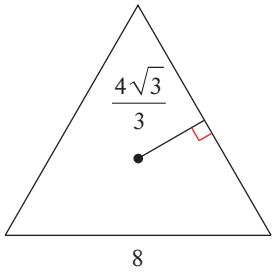
Kuta Software - Infinite Geometry Name_____

Area of Regular Polygons

Date_____ Period____

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

1)



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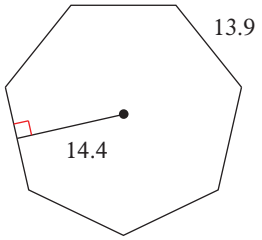

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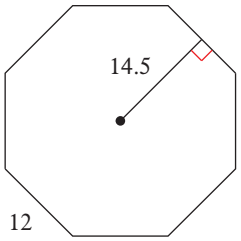

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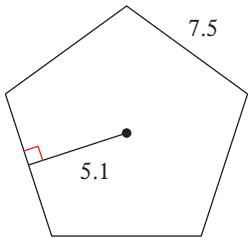

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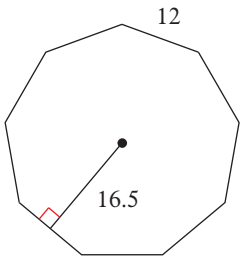

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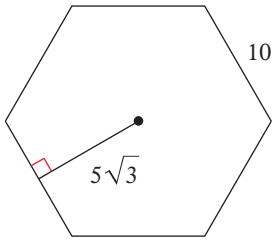


7) pentagon
apothem = 7.3
side = 10.6

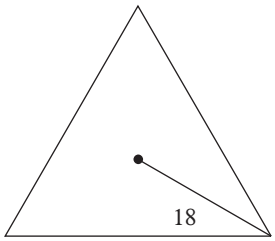
8) triangle
apothem = 14
side = $28\sqrt{3}$

9) 7-gon
apothem = 21.8
side = 21

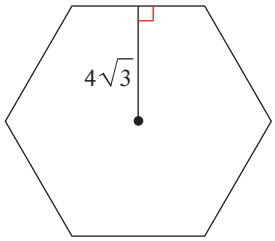
10) octagon
apothem = 14.1
side = 11.7

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

11)



12)



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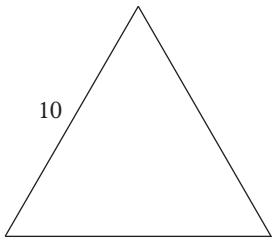

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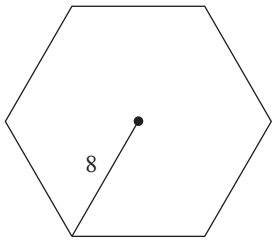

15) quadrilateral
radius = $16\sqrt{2}$

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?