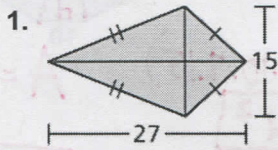


11.3 Practice WS

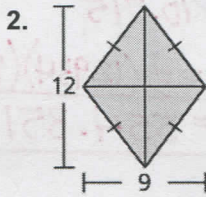
In Exercises 1–4, find the area of the kite or rhombus.



$$A = \frac{1}{2}(27)(15)$$

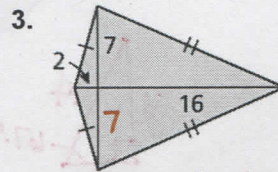
$$= \frac{1}{2}(405)$$

$$A = 202.5 u^2$$



$$A = \frac{1}{2}(9)(12)$$

$$A = 54 u^2$$

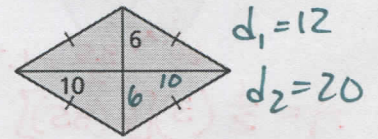


$$d_1 = 14 \quad d_2 = 16$$

$$A = \frac{1}{2}(14)(16)$$

$$= 112 u^2$$

$$A = \frac{d_1 d_2}{2}$$



$$d_1 = 12 \quad d_2 = 10$$

$$A = \frac{1}{2}(12)(10)$$

$$= 60 u^2$$

In Exercises 5–8, find the measure of a central angle of a regular polygon with the given number of sides. Round answers to the nearest tenth of a degree, if necessary.

$$\frac{360}{n}$$

5. 9 sides

$$\frac{360}{9}$$

$$40^\circ$$

6. 16 sides

$$\frac{360}{16}$$

$$22.5^\circ$$

7. 20 sides

$$\frac{360}{20}$$

$$18^\circ$$

8. 28 sides

$$\frac{360}{28}$$

$$12.9^\circ$$

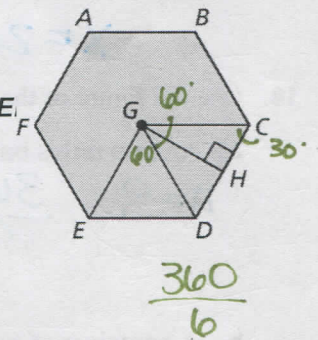
In Exercises 9–12, find the given angle measure for regular hexagon ABCDEF.

9. $m\angle CGD$

$$60^\circ$$

10. $m\angle CGH$

$$30^\circ$$



11. $m\angle HCG$

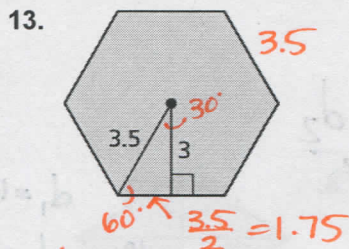
$$30^\circ$$

12. $m\angle EGC$

$$120^\circ$$

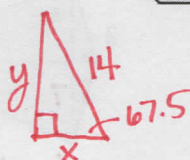
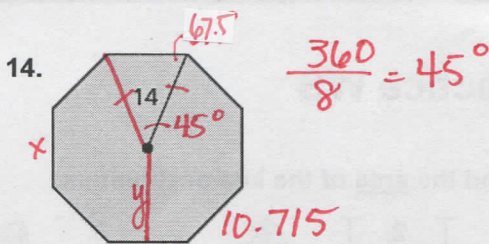
In Exercises 13–17, find the area of the regular polygon. Draw your own image if one is not provided.

$$A = \frac{1}{2} a p$$



$$A = \frac{1}{2} (3) [6(3.5)]$$

$$= 315 u^2$$



$$\cos 67.5 = \frac{x}{14}$$

$$x = 14(\cos 67.5)$$

$$x = 5.358$$

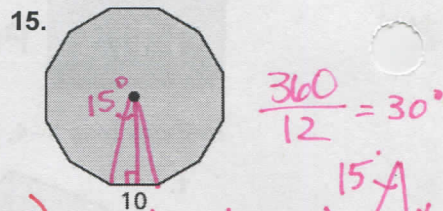
$$\sin 67.5 = \frac{y}{14}$$

$$y = 14 \sin 67.5$$

$$y = 12.934$$

$$A = \frac{1}{2} (12.934)(8 \cdot 10.715)$$

$$= 554.351 u^2$$



$$\frac{360}{12} = 30^\circ$$

$$\tan 15 = \frac{5}{x}$$

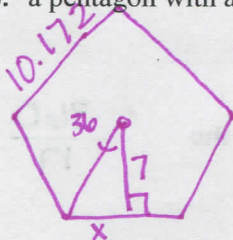
$$x = \frac{5}{\tan 15}$$

$$x = 18.66$$

$$A = \frac{1}{2} (18.66)(10 \cdot 12)$$

$$= 1119.6 u^2$$

16. a pentagon with an apothem of 7 centimeters



$$\frac{360}{5} = 72$$

$$\tan 36 = \frac{x}{7}$$

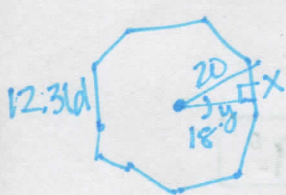
$$x = 7 \tan 36$$

$$\approx 5.086$$

$$A = \frac{1}{2} (7)(5)(10.172)$$

$$\approx 178.01 \text{ cm}^2$$

17. a decagon with a radius of 20 meters



$$\frac{360}{10} = \frac{36}{2} = 18^\circ$$

$$\sin 18 = \frac{x}{20}$$

$$x = 20(\sin 18) \approx 6.180$$

$$\cos 18 = \frac{y}{20}$$

$$y = 20 \cos 18$$

$$y \approx 19.021$$

$$A = \frac{1}{2} (19.021)(10 \cdot 12.361)$$

$$\approx 1175.593 \text{ m}^2$$

18. Use the figure of the gazebo floor below to answer questions a and b.

a. An arm rail is built around the perimeter of the gazebo. What is the length of the arm rail?

$$n = 9 \quad \frac{360}{9} = 40^\circ$$

$$\sin 20 = \frac{x}{12}$$

$$x = 12(\sin 20)$$

$$x = 4.104$$

$$9(8.208)$$

$$\approx 73.876 \text{ ft}$$

b. A container of wood sealer covers 200 square feet. How many containers of sealer do you need to cover the entire floor of the gazebo? Explain your reasoning.

$$A = 200 \text{ ft}^2$$

$$A = \frac{1}{2} a p$$

$$= \frac{1}{2} (11.276)(73.876)$$

$$\approx 416.513 \text{ ft}^2$$

