

11.2 Areas of Circles & Sectors CYU

Use when you get it right all by yourself

S Use when you did it all by yourself, but made a silly mistake

H Use when you could do it alone with a little help from teacher or peer

G Use when you completed the problem in a group

X Use when a question was attempted but wrong (get help)

N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Area of circles	1	2	
Population Density	3	4	
Area of sectors	5	6, 7	8
Area of composite shapes	9		
Area of shaded regions	10	11	13 - 18
Real-World Application		12	

Find the indicated measure. Show the set up to earn full credit. Use appropriate units. Leave your answer exact and rounded to the thousandths.

1. radius of a circle with an area of 1017.9 square meters

$$r = \sqrt{\frac{1017.9}{\pi}} \text{ m} \approx 18 \text{ m}$$

2. diameter of a circle with an area of 707 square inches

$$r = 2 \left(\sqrt{\frac{707}{\pi}} \right) \text{ in} \approx 30.003 \text{ in}$$

3. About 1.2 million people live in a region with a 6-mile radius. Find the population density in people per square mile.

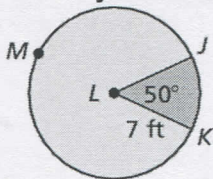
$$\approx 10,610 \frac{\text{people}}{\text{mi}^2}$$

4. A region with a 15-mile diameter has a population density of about 5000 people per square mile. Find the number of people who live in the region.

$$\approx 883,573 \text{ people}$$

Find the areas of the sectors formed by $\angle JLK$. Show the set up to earn full credit. Use appropriate units. Leave your answer exact and rounded to the thousandths.

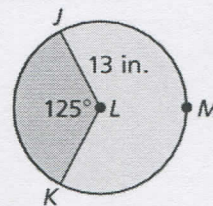
5.



$$= \frac{245\pi}{36} \text{ ft}^2$$

$$\approx 21.380 \text{ ft}^2$$

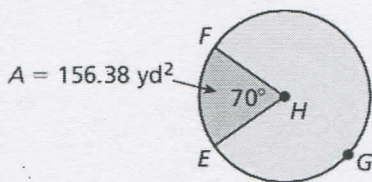
6.



$$= \frac{4225\pi}{72} \text{ in}^2$$

$$\approx 184.350 \text{ in}^2$$

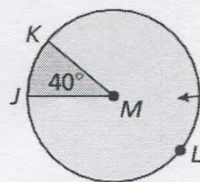
7. Find the area of $\odot H$.



$$A = 156.38 \text{ yd}^2$$

$$= 804.24 \text{ yd}^2$$

8. Find the area of $\odot M$.



$$A = 11.17 \text{ m}^2$$

$$\approx 12.566 \text{ m}^2$$

Find the area of the shaded region. Show the set up to earn full credit. Use appropriate units. Leave your answer exact and rounded to the thousandths.

9. $\triangle + \frac{1}{2} \odot$

$= 60 + 8\pi \text{ ft}^2$
 $\approx 85.133 \text{ ft}^2$

10. $80 - 50$

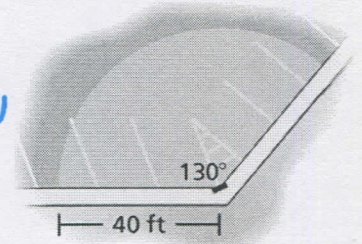
$= 280\pi \text{ mm}^2$
 $\approx 879.650 \text{ mm}^2$

11. $\square - 4 \odot$

$= 100 - 25\pi \text{ cm}^2$
 $\approx 21.460 \text{ cm}^2$

12. The diagram shows the coverage of a security camera outside a building. A new security camera is installed in the same position that doubles the radius of the coverage area. How does this affect the coverage area? Explain.

Doubles w/ area means 2^2 so, 4x larger.



Find the area of each shaded region. Show the set up to earn full credit. Use appropriate units. Leave your answer exact and rounded to the thousandths.

13. $= 64\pi - 96\sqrt{3}$
 cm^2
 $\approx 34.785 \text{ cm}^2$

14. $= 49\pi - 98\text{m}^2$
 $\approx 55.938 \text{ m}^2$

15. $= 16\pi - 80(\sin 54)$
 $(\cos 54) \text{ in}^2$
 $\approx 12.223 \text{ in}^2$

16. $= 100 - 25\pi \text{ cm}^2$
 $\approx 21.460 \text{ cm}^2$

17. $= 108\sqrt{3} \text{ u}^2$
 $\approx 187.061 \text{ u}^2$

18. $= 42\sqrt{3} \text{ u}^2$
 $\approx 72.746 \text{ u}^2$

CYU Reflection: How far can you go: basic, intermediate, or advanced?

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

