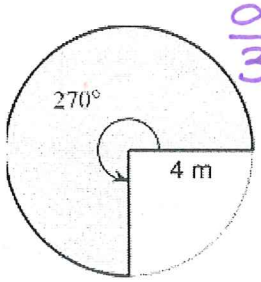
Key

Area of Sectors and Segments HW- ACC

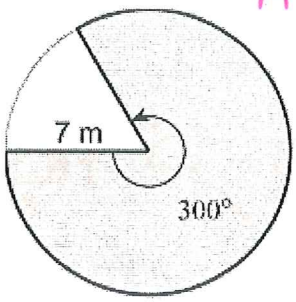
Find the area of the shaded region. Show in terms of pi and round to the nearest hundredth.

1. 

$\frac{270}{360}\pi 4^2$

$A = 12\pi m^2$

$A \approx 37.70 m^2$

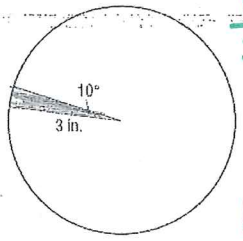
2. 

$A = \frac{300}{360}\pi 7^2$

$A = \frac{245\pi}{6}$

$A = 128.28 m^2$

3. A grocery store is slicing a wheel of cheese into slivers for free samples.

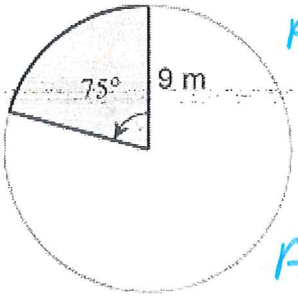


$\frac{10}{360}\pi 3^2$

$A = \frac{\pi}{4} in^2$

$A = 0.79 in^2$

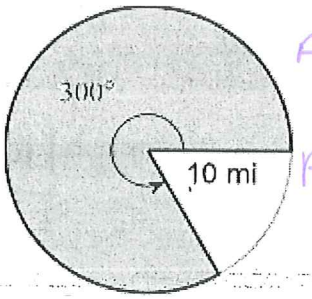
What is the area, in square inches, of one sliver?

4. 

$A = \frac{75}{360}\pi 9^2$

$A = \frac{135\pi}{8} m^2$

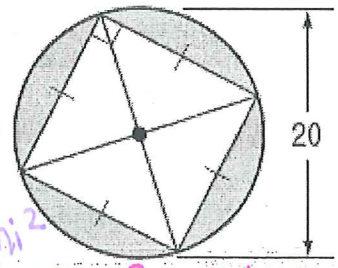
$A = 53.01 m^2$

5. 

$A = \frac{300\pi 10^2}{360}$

$A = \frac{250\pi}{3} mi^2$

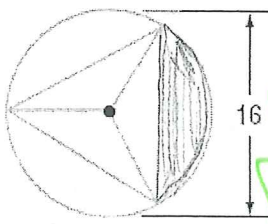
$A \approx 261.80 mi^2$

6. 

$= \pi 10^2 - 4\frac{1}{2}10 \cdot 10 \sin 90$

$A = (100\pi - 200) units^2$

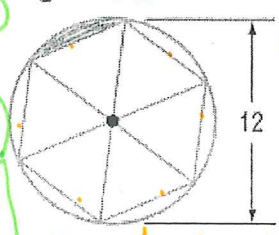
$A = 114.16 units^2$

7. 

$\frac{1}{3}(\pi 8^2 - 3\frac{1}{2}8 \cdot 8 \sin 120)$

$A = \frac{1}{3}(64\pi - 83.14)$

$A = 39.31 units^2$

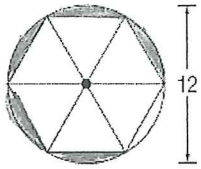
8. 

$A = \frac{1}{6}(O - hexagon)$

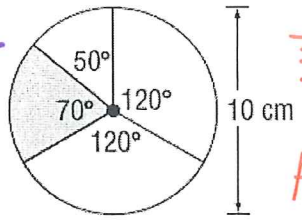
$A = \frac{1}{6}(\pi 6^2 - 6\frac{1}{2}6 \cdot 6 \sin 60)$

$A = 3.26 units^2$

$A = \frac{5}{6}(\pi 6^2 - 6\tfrac{1}{2}6 \cdot 6 \sin 60)$

9. 

$A = 16.31 \text{ units}^2$

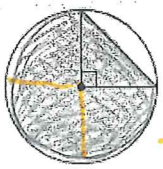
10. 

$\frac{70}{360}\pi 5^2$

$A = \frac{175\pi}{36}\text{ cm}^2$

$A \approx 15.27 \text{cm}^2$

11. r=8cm

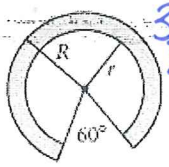


$\frac{1}{2}8 \cdot 8$

$\frac{3}{4}\pi 8^2 + \frac{1}{2}8 \cdot 8$

$A = 182.80 \text{ cm}^2$

12. R = 12m, r = 9m



$\frac{300}{360}(\pi R^2 - \pi r^2)$

$A = \frac{300}{360}(\pi 12^2 - \pi 9^2)$

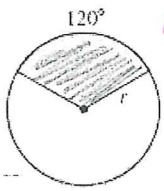
$A = \frac{300}{360}(63\pi)$

$A = \frac{105\pi}{2}$

$A = 164.93 \text{m}^2$

Find the missing variable.

13. The shaded area is $12\pi \text{cm}^2$. Find r.



$A = \frac{120}{360}\pi r^2$

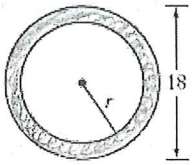
$12\pi = \frac{120}{360}\pi r^2$

$12 = \frac{120}{360}r^2$

$36 = r^2$

$r = 6\text{cm}$

14. The shaded area is $32\pi \text{cm}^2$. Find r.



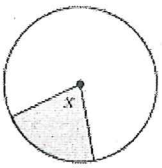
$32\pi = \pi 9^2 - \pi r^2$

$\frac{-49\pi}{-\pi} = \frac{-\pi r^2}{-\pi}$

$49 = r^2$

$r = 7\text{cm}$

15. The shaded area is $120\pi \text{cm}^2$ and the radius is 24cm. Find x.

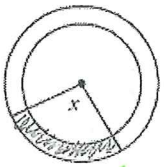


$120\pi = \frac{x}{360}\pi 24^2$

$120 = \frac{576x}{360}$

$x = 75°$

16. The shaded area is $10\pi \text{ cm}^2$. The radius of the large circle is 10 cm and the radius of the small circle is 8 cm. Find x.



$10\pi = \frac{x}{360}(\pi 10^2 - \pi 8^2)$

$10\pi = \frac{x}{360}(36\pi)$

$10 = \frac{36x}{360}$

$x = 100°$