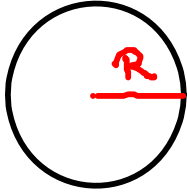
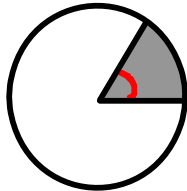


## Areas of Circles and Sectors



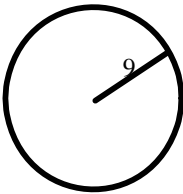
$$\text{Area of a Circle} = \pi r^2$$



$$\text{Area of a Sector} = \pi r^2 \cdot \frac{\text{central angle}}{360^\circ}$$

1. Find the area of each circle.

a)

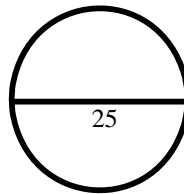


$$A = \pi R^2$$

$$A = \pi (9)^2$$

$$A = 81\pi \text{ OR } 254.47$$

b)



$$D = 25 \quad R = \frac{25}{2}$$

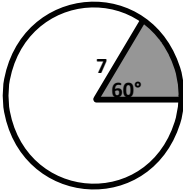
$$A = \pi R^2$$

$$A = \pi \left(\frac{25}{2}\right)^2$$

$$A = \frac{625\pi}{4} \text{ OR } 490.87$$

2. Find the area of the shaded region.

a)



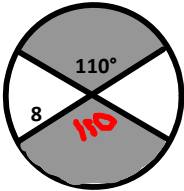
$$R=7 \quad \text{central } \angle = 60^\circ$$

$$A = \pi R^2 \cdot \frac{\text{central } \angle}{360}$$

$$A = \pi (7)^2 \cdot \frac{60}{360}$$

$$A = \frac{49\pi}{6} \quad \text{OR } 25.66$$

b)



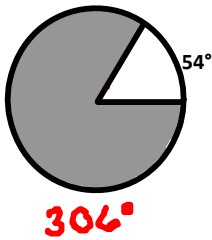
$$R=8 \quad \text{central } \angle = 110^\circ$$

$$A = \pi R^2 \cdot \frac{\text{central } \angle}{360}$$

$$A = \pi (8)^2 \cdot \frac{110}{360}$$

$$A = \frac{32}{189} \pi \cdot 110 = \frac{352\pi}{9} \quad \text{OR } 122.87$$

c)



$$\text{central } \angle = 306^\circ$$

$$C = 36\pi$$

$$C = \pi D$$

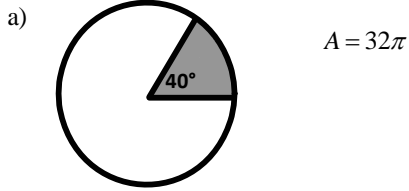
$$D = 36$$

$$R = \frac{36}{2} = 18$$

$$A = \pi R^2 \cdot \frac{\text{central } \angle}{360} = \pi (18)^2 \cdot \frac{306}{360} = \pi (324) \cdot \frac{17}{20}$$

$$A = \frac{1377\pi}{5} \quad \text{OR } 865.20$$

3. Find the radius of circle A. Round your answer to the nearest hundredth.



$$A = \pi R^2 \cdot \frac{\text{central } \angle}{360}$$

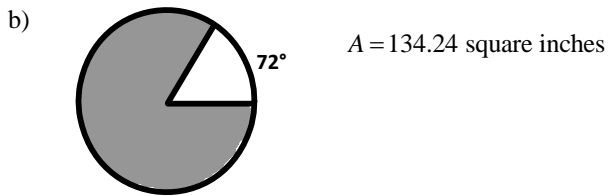
$$32\pi = \pi R^2 \cdot \frac{40^\circ}{360}$$

$$\frac{32\pi}{1} = \frac{\pi R^2}{9}$$

$$\frac{\pi R^2}{\pi} = \frac{288\pi}{\pi}$$

$$\sqrt{R^2} = \sqrt{288}$$

$$R = 16.97$$



major arc =  $360 - 72 = 288^\circ$   
 central  $\angle = 288^\circ$

$$A = \pi R^2 \cdot \frac{\text{central } \angle}{360}$$

$$134.24 = \pi R^2 \cdot \frac{288}{360}$$

$$\frac{134.24}{1} = \frac{4\pi R^2}{5}$$

calculator:  
 $671.2 \div (4 \times \pi)$

$$\sqrt{R^2} = \sqrt{53.4124}$$

$$R = 7.31 \text{ inches}$$