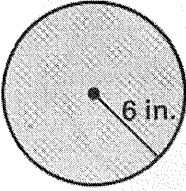
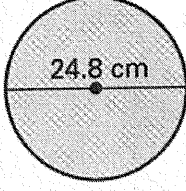


Find the exact area of the circle. Then find the area to the nearest hundredth.

1.   $A = \pi 6^2$   
 $A = 36\pi \text{ in}^2$  exact  
 $A \approx 113.10 \text{ in}^2$

2.   $\frac{24.8}{2} = 12.4 = r$   
 $A = \pi 12.4^2$   
 $A = 153.76\pi \text{ cm}^2$   
 $A \approx 483.05 \text{ cm}^2$

Find the indicated measure.

3. The area of a circle is  $173 \text{ in}^2$ . Find the radius to the nearest hundredth.

$$\frac{173}{\pi} = \frac{\pi r^2}{\pi} \quad \sqrt{55.0676} = \sqrt{r^2}$$

$$\boxed{7.42 \text{ in} = r}$$

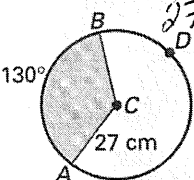
4. The area of a circle is  $654 \text{ cm}^2$ . Find the diameter to the nearest hundredth.

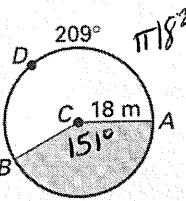
$$\frac{654}{\pi} = \frac{\pi r^2}{\pi} \quad \sqrt{208.175} = \sqrt{r^2} \quad r \approx 14.43$$

$$d = (14.43)2$$

$$\boxed{d = 28.86 \text{ cm}}$$

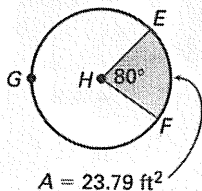
Find the areas of the sectors formed by  $\angle ACB$  to the nearest hundredth.

5.   $\frac{\text{Area}}{\pi 27^2} = \left(\frac{130}{360}\right) 27^2 \pi$   
 $\text{Area} \approx 827.02 \text{ cm}^2$

6.   $\left(\frac{\text{Area}}{\pi 18^2}\right) = \left(\frac{151}{360}\right) \pi 18^2$   
 $360 - 209 = 151$   
 $\text{Area} = 426.94 \text{ m}^2$

Use the diagram to find the indicated measure to the nearest hundredth.

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

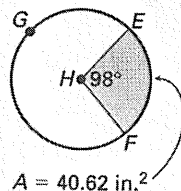


$$\frac{23.79}{A} = \frac{80}{360}$$

$$\frac{80A}{80} = \frac{8564.4}{80}$$

$$\boxed{A = 107.06 \text{ ft}^2}$$

8. Find the radius of  $\odot H$ .



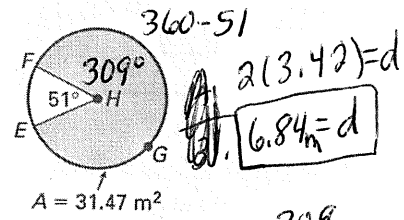
$$\frac{40.62}{\pi r^2} = \frac{98}{360}$$

$$\frac{98\pi r^2}{(98\pi)} = \frac{14623.2}{(98\pi)}$$

$$\sqrt{r^2} = \sqrt{47.497}$$

$$\boxed{r = 6.89 \text{ in}}$$

9. Find the diameter of  $\odot H$ .



$$\frac{31.47}{\pi r^2} = \frac{309}{360}$$

$$309\pi r^2 = \frac{11329.2}{309\pi}$$

$$\sqrt{r^2} = \sqrt{11.67}$$

$$r = 3.42$$

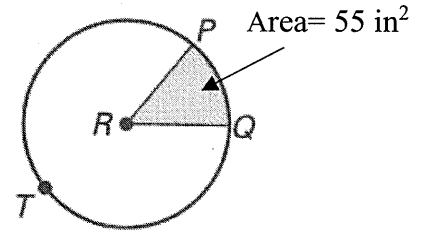
$$2(3.42) = d$$

$$\boxed{6.84 \text{ m} = d}$$

The area of  $\odot R$  is  $295.52 \text{ in}^2$  and the area of sector  $PRQ$  is  $55 \text{ in}^2$ . Find the indicated measure to the nearest hundredth.

10. Radius of  $\odot R$   
 $A_{\text{total}} = 55 + 295.52$   $r = 10.56 \text{ in}$

11. Circumference of  $\odot R$   
 $C = 2\pi(10.56)$   
 $C = 66.35 \text{ in}$



$A = \frac{350.52 \text{ in}^2}{\pi} = \frac{\pi r^2}{\pi}$   
 $\sqrt{111.57} = r$

12.  $m\widehat{PQ}$   
 $360 \left( \frac{55}{350.52} \right) = \left( \frac{m\widehat{PQ}}{360} \right) 360$   
 $56.49^\circ = m\widehat{PQ}$

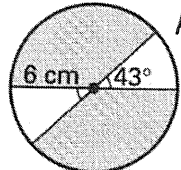
13. Length of  $\widehat{PQ}$   
 $\frac{66.35}{360} \left( \frac{\text{length } \widehat{PQ}}{66.35} \right) = \left( \frac{56.49}{360} \right) 66.35$   
 $\text{length } \widehat{PQ} = 10.41 \text{ in}$

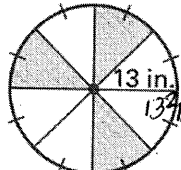
Area of  $\odot R = 295.52 \text{ in}^2$

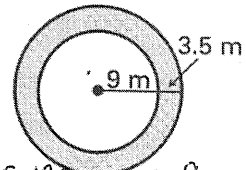
14. Perimeter of shaded region  
 $P = 10.56 + 10.56 + 10.41$   
 $P = 31.53 \text{ in}$

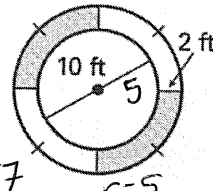
15. Perimeter of unshaded region  
 $\text{length } \widehat{PQT} = 66.35 - 10.41$   
 $\text{length } \widehat{PQT} = 55.94 \text{ in}$   
 $P = 55.94 + 10.56 + 10.56 = 77.06 \text{ in}$

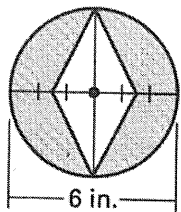
Find the area of the shaded region.

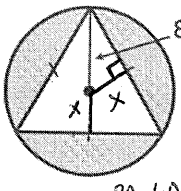
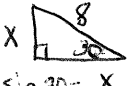
16.   $A_{\text{shaded}} = A_{\text{total}} - 2(A_{\text{white}})$   
 $A_{\text{total}} = \pi 6^2 = 36\pi$   
 $A_{\text{total}} \approx 113.10 \text{ cm}^2$   
 $36\pi \left( \frac{A_{\text{sect.}}}{36\pi} \right) = \left( \frac{43}{360} \right) 36\pi$   
 $A_{\text{sect}} = 13.51$   
 $2(13.51) = 27.02$   
 $A_{\text{shaded}} = 86.08 \text{ cm}^2$

17.   $\frac{360}{8} = 45^\circ$   
 $\left( \frac{A_{\text{sect}}}{\pi 13^2} \right) = \left( \frac{45}{360} \right) \pi 13^2$   
 $A_{\text{sect}} = 66.37 \text{ in}^2$   
 $3(66.37)$   
 $A_{\text{shaded}} = 199.11 \text{ in}^2$

18.   $r = 12.5$ ,  $r = 9$   
 $A_{\text{large}} - A_{\text{small}} = A_{\text{shaded}}$   
 $\pi 12.5^2 - \pi 9^2 = A$   
 $156.25\pi - 81\pi = A$   
 $75.25\pi = A$   
 $236.40 \text{ m}^2 = A$

19.   $r = 7$ ,  $r = 5$   
 $A_{\text{large}} - A_{\text{small}}$   
 $\frac{\pi 7^2 - \pi 5^2}{2}$   
 $\frac{49\pi - 25\pi}{2}$   
 $\frac{24\pi}{2} = 12\pi = 37.70 \text{ ft}^2$

20.   $d_1 = 6$ ,  $d_2 = 3$   
 $A_{\text{shaded}} = A_{\text{circle}} - A_{\text{rhombus}}$   
 $= \pi 3^2 - \left( \frac{6 \cdot 3}{2} \right)$   
 $= 9\pi - 9$   
 $A_{\text{shaded}} = 19.27 \text{ in}^2$

21.   $A_0 - A_{\Delta} = A_{\text{shaded}}$   
 $\frac{8^2}{8\pi}$   
 $x$    $30-60-90$ ,  $\text{hyp} = 2 \text{ short}$ ,  $8 = 2x$ ,  $4 = x$   
 $\sin 30 = \frac{x}{8}$ ,  $8 \sin 30 = x$ ,  $4 = x$   
 $A_{\Delta} = \frac{(13.86)(12)}{2} = 83.16$   
 $A_{\text{shaded}} = 64\pi - 83.16$   
 $A_{\text{shaded}} = 117.90 \text{ cm}^2$   
 $\cos 30 = \frac{12}{y}$ ,  $y = \frac{12}{\cos 30} = 13.86$  (base  $\Delta$ )