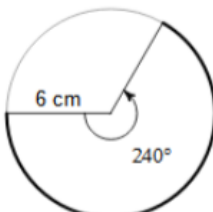
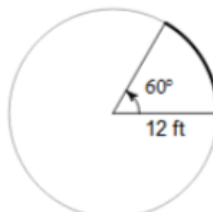


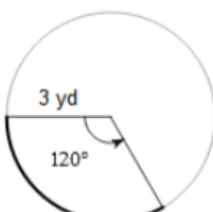
Arc Length

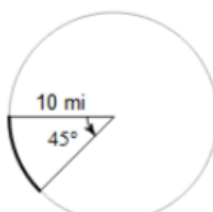
Find the length of each arc. Leave answers in terms of pi.

1)  $\frac{240}{360} = \frac{S}{2\pi(6)}$
 $360S = 2880\pi$
 $S = 8\pi \text{ cm}$

2)  $\frac{60}{360} = \frac{S}{2\pi(12)}$
 $360S = 1440\pi$
 $S = 4\pi \text{ ft.}$

Find the length of each arc. Round your answers to the nearest hundredth.

3)  $\frac{120}{360} = \frac{S}{2\pi(3)}$
 $360S = 720\pi$
 $S = 2\pi = 6.28 \text{ yd}$

4)  $\frac{45}{360} = \frac{S}{2\pi(10)}$
 $360S = 900\pi$
 $S = \frac{5\pi}{2} = 7.584 \text{ mi.}$

Find the length of each arc. Leave answers in terms of pi.

5) $r = 11 \text{ mi}, \theta = 120^\circ$
 $\frac{120}{360} = \frac{S}{2\pi(11)}$ $360S = 2640\pi$
 $S = \frac{22\pi}{3}$

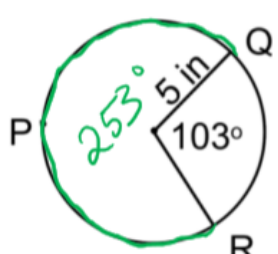
6) $r = 10 \text{ cm}, \theta = 45^\circ$
 $\frac{45}{360} = \frac{S}{2\pi(10)}$ $360S = 900\pi$
 $S = \frac{5\pi}{2} \text{ cm.}$

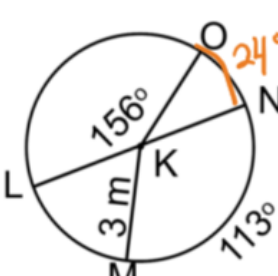
Find the missing value. Leave answers in terms of pi.

7) If $S = 4\pi \text{ ft}$ and $\theta = 120^\circ$, what is the radius?
 $\frac{120}{360} = \frac{4\pi}{2\pi r}$ $120r = 720$
 $r = 6 \text{ ft.}$

8) If $S = 8\pi \text{ m}$ and $r = 13.5 \text{ m}$, what is the central angle?
 $\frac{\theta}{360} = \frac{8\pi}{2\pi(13.5)}$ $27\theta = 2880$
 $\theta = \frac{320}{3}^\circ$

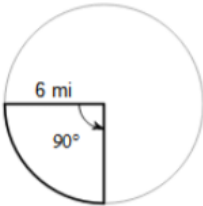
Find the length of each indicated arc. Round answers to the nearest thousandth. Assume any segment that looks like a diameter is a diameter.

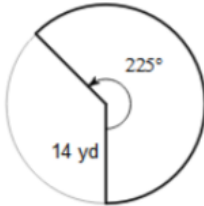
9. Find the length of \widehat{RPQ} .
 $\frac{253}{360} = \frac{S}{2\pi(5)}$
 $360S = 2530\pi$
 $S = 22.079 \text{ in}$

10. Find the length of \widehat{ON} .
 $\frac{24}{360} = \frac{S}{2\pi(3)}$
 $S = 1.257 \text{ m}$

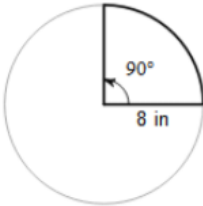
Sector Area

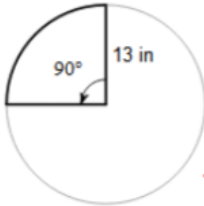
Find the area of each sector. Leave answers in terms of pi.

1)  $\frac{90}{360} = \frac{x}{\pi(6)^2}$
 $360x = 3240\pi$
 $x = 9\pi \text{ mi}^2$

2)  $\frac{225}{360} = \frac{x}{\pi(14)^2}$
 $360x = 44,100\pi$
 $x = \frac{245}{2}\pi \text{ yd}^2$

Find the area of each sector. Round your answers to the nearest thousandths.

3)  $\frac{90}{360} = \frac{x}{\pi(8)^2}$
 $360x = 5760\pi$
 $x = 16\pi \approx 50.265 \text{ in}^2$

4)  $\frac{90}{360} = \frac{x}{\pi(13)^2}$
 $360x = 15,210\pi$
 $x = \frac{109\pi}{4} \approx 132.732 \text{ in}^2$

Find the area of each sector.

5) $r = 12 \text{ yd}, \theta = 135^\circ$
 $\frac{135}{360} = \frac{x}{\pi(12)^2}$ $360x = 19440$
 $x = 54 \text{ yd}^2$

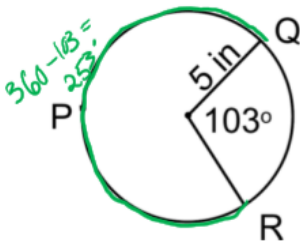
6) $r = 9 \text{ yd}, \theta = 210^\circ$
 $\frac{210}{360} = \frac{x}{\pi(9)^2}$ $360x = 17010\pi$
 $x = \frac{189\pi}{4} \approx 148.440 \text{ yd}^2$

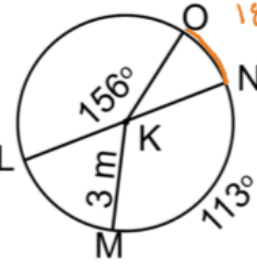
Find the missing value. Leave answers in terms of pi.

7) If $A_{\text{sector}} = 16\pi \text{ in}^2$ and $\theta = 45^\circ$, what is the radius?
 $\frac{45}{360} = \frac{16\pi}{\pi r^2}$ $45r^2 = 5760$
 $r^2 = 128$
 $r = \sqrt{128} = 8\sqrt{2} \text{ in.}$

8) If $A_{\text{sector}} = 16\pi \text{ in}^2$ and $\theta = 45^\circ$, what is the radius?
 Same as number 7...

Find the area of each indicated sector. Round your answer to the nearest thousandth. Assume any segment that looks like a diameter is a diameter.

9. Find the area of the sector formed by \widehat{RPQ} .  $\frac{253}{360} = \frac{x}{\pi(5)^2}$
 $360x = 6325\pi$
 $x = 55.196 \text{ in}^2$

10. Find the area of the sector formed by \widehat{ON} .  $180 - 156 = 24^\circ$
 $\frac{24}{360} = \frac{x}{\pi(3)^2}$
 $360x = 216\pi$
 $x = 1.885 \text{ m}^2$