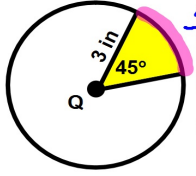
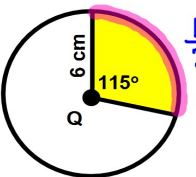
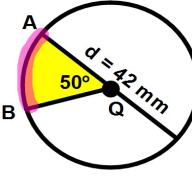
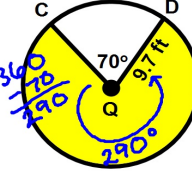


Finding Arc Lengths:

$$\text{Arc Length} = \frac{\text{arc}}{360^\circ} \cdot \pi d$$

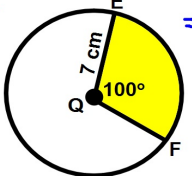
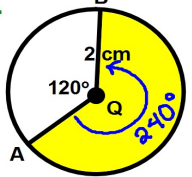
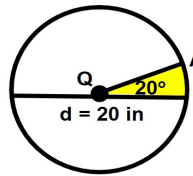
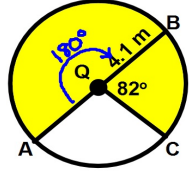
Find the length of the arc where the region is shaded:

1.  $\frac{45}{360} \cdot 2\pi(3)$
 $= \frac{3\pi}{4}$
 $= 2.36 \text{ in}$
2.  $\frac{115}{360} \cdot 2\pi(6)$
 $= \frac{23\pi}{6}$
 $= 12.04 \text{ cm}$
3.  $\frac{50}{360} \cdot \pi(42)$
 $= \frac{35\pi}{6}$
 $= 18.33 \text{ mm}$
4.  $\frac{70}{360} \cdot 2\pi(9.7)$
 $= \frac{290}{360} \cdot 2\pi(9.7)$
 $= 49.1 \text{ ft}$

Finding Arc Lengths: You Practice:

$$\text{Arc Length} = \frac{\text{arc}}{360^\circ} \cdot \pi d$$

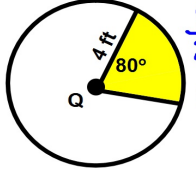
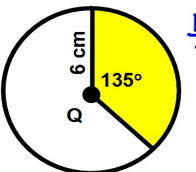
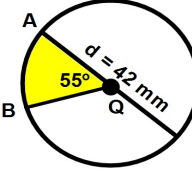
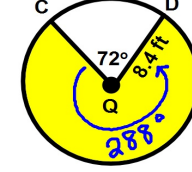
Find the length of the arc where the region is shaded:

5.  $= \frac{100}{360} \cdot 2\pi(7)$
 $= \frac{35\pi}{9}$
 $= 12.22 \text{ cm}$
6.  $= \frac{240}{360} \cdot 2\pi(2)$
 $= \frac{8\pi}{3}$
 $= 8.38 \text{ cm}$
7.  $= \frac{20}{360} \cdot \pi(20)$
 $= \frac{10\pi}{9}$
 $= 3.49 \text{ in}$
8.  Shaded is $180 + 82 = 262^\circ$
 $= \frac{262}{360} \cdot 2\pi(4.1)$
 $= 18.75 \text{ m}$

Sector Area:

$$\text{Sector Area} = \frac{\text{arc}}{360^\circ} \cdot \pi r^2$$

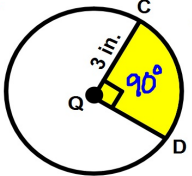
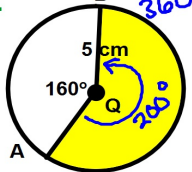
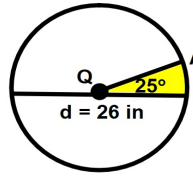
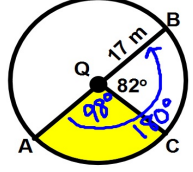
Find the sector area of the shaded region:

1.  $\frac{80}{360} \cdot \pi(4)^2$
 $= 11.17 \text{ ft}^2$
2.  $\frac{135}{360} \cdot \pi(6)^2$
 $= 42.41 \text{ cm}^2$
3.  $\frac{55}{360} \cdot \pi(21)^2$
 $= 211.166 \text{ mm}^2$
4.  $\frac{288}{360} \cdot \pi(8.4)^2$
 $= 177.34 \text{ ft}^2$

Sector Area: You Practice:

$$\text{Sector Area} = \frac{\text{arc}}{360^\circ} \cdot \pi r^2$$

Find the sector area of the shaded region:

5.  $\frac{90}{360} \cdot \pi(3)^2$
 $= 7.07 \text{ in}^2$
6.  $\frac{200}{360} \cdot \pi(5)^2$
 $= 43.63 \text{ cm}^2$
7.  $\frac{25}{360} \cdot \pi(13)^2$
 $= 36.87 \text{ in}^2$
8.  $\frac{98}{360} \cdot \pi(17)^2$
 $= 247.16 \text{ m}^2$