

43. Using the formula  $s = \theta r$ , the length of the arc is  $s = \left(220 \cdot \frac{\pi}{180}\right) \cdot 5 = \frac{55\pi}{9} \approx 19.2$ .

45. Solving for  $r$  we have  $r = \frac{s}{\theta}$ , so the radius of the circle is  $r = \frac{8}{2} = 4$ .

47. Using the formula  $s = \theta r$ , the length of the arc is  $s = 2 \cdot 2 = 4$  mi.

49. Solving for  $\theta$  we have  $\theta = \frac{s}{r}$ , so the measure of the central angle is  $\theta = \frac{100}{50} = 2$  rad. Converting to degrees we have  $\theta = 2 \cdot \frac{180^\circ}{\pi} \approx 114.6^\circ$