

Obj. 17 Radian Measure  
Homework Problems  
SOLUTIONS

*College Algebra*, pg. 565: 10, 15, 25-65 (×5s), 68, 71, 75-90 (×5s), 120, 124, 126

$$10. 120^\circ \left( \frac{\pi}{180^\circ} \right) = \frac{2\pi}{3}$$

$$15. 450^\circ \left( \frac{\pi}{180^\circ} \right) = \frac{5\pi}{2}$$

$$25. \frac{\pi}{3} \left( \frac{180}{\pi} \right) = 60^\circ$$

30. (HW)

$$35. -\frac{4\pi}{15} \left( \frac{180}{\pi} \right) = -48^\circ$$

$$40. 15\pi \left( \frac{180}{\pi} \right) = 2700^\circ$$

$$45. 139^\circ 10' = 139.1\bar{6}$$

$$139.1\bar{6} \left( \frac{\pi}{180} \right) \approx 2.43$$

50. (HW)

$$55. 1.74 \left( \frac{180}{\pi} \right) \approx 99.69^\circ$$

$$\approx 99^\circ 42'$$

$$60. -3.47189 \left( \frac{180}{\pi} \right)$$

$$\approx -198.925^\circ$$

$$\approx -198^\circ 55'$$

$$65. s = 16 \left( \frac{5\pi}{4} \right) = 20\pi$$

68. (HW)

$$71. 20 = 10\theta$$

$$\theta = 2$$

$$75. s = (1.38) \left( \frac{5\pi}{6} \right) \approx 3.61 \text{ ft}$$

80. (HW)

$$85. s = (6400)(41 + 12) \left( \frac{\pi}{180} \right)$$

$$= 5900 \text{ km}$$

$$87. 1200 = (6400)(x - 33) \left( \frac{\pi}{180} \right)$$

$$\frac{3}{16} = (x - 33) \left( \frac{\pi}{180} \right)$$

$$x = \left( \frac{3}{16} \right) \left( \frac{180}{\pi} \right) + 33$$

$$\approx 44^\circ \text{ N}$$

88. (HW)

90. (HW)

$$120. \theta = (95) \left( \frac{\pi}{180} \right) = \frac{19\pi}{36}$$

$$A_1 = \frac{1}{2} (10^2) \left( \frac{19\pi}{36} \right) = \frac{475\pi}{18} \text{ in}^2$$

$$A_2 = \frac{1}{2} (3^2) \left( \frac{19\pi}{36} \right) = \frac{19\pi}{8} \text{ in}^2$$

$$A = \frac{475\pi}{18} - \frac{19\pi}{8} = \frac{1900\pi}{72} - \frac{171\pi}{72}$$

$$= \frac{1729\pi}{72} \approx 75.44 \text{ in}^2$$

$$124. s = 3963 \left( \frac{1}{60} \right) \left( \frac{\pi}{180} \right) \approx 1.15 \text{ mi}$$

126. (HW)