AdvAlg2, Homework due Wednesday, 5/3

Express each degree measure as a radian measure using π.

1. $120°$ **2.** $-135°$ **3.** $210°$ **4.** $-45°$ **5.** $300°$

6. $-315°$ **7.** $150°$ **8.** $330°$ **9.** $-144°$ **10.** $108°$

Express each radian measure as a degree measure.

11. $\dfrac{3\pi}{2}^R$ **12.** $\dfrac{4\pi}{3}^R$ **13.** $-\dfrac{\pi}{4}^R$ **14.** $-\dfrac{5\pi}{6}^R$ **15.** $\dfrac{11\pi}{6}^R$

16. $-\dfrac{3\pi}{5}^R$ **17.** $\dfrac{7\pi}{4}^R$ **18.** $\dfrac{13\pi}{6}^R$ **19.** $\dfrac{5\pi}{12}^R$ **20.** $-\dfrac{7\pi}{9}^R$

Find the length of the arc on a circle with the given radius that is intercepted by a central angle of the given measurement. Use $\pi \approx \frac{22}{7}$.

21. $28\,\text{cm}; \ 270°$ **22.** $2.1\,\text{cm}; \ 390°$ **23.** $10.5\,\text{cm}; \ 150°$

24. $714\,\text{mm}; \ \dfrac{5\pi}{3}^R$ **25.** $49\,\text{cm}; \ \dfrac{\pi}{4}^R$ **26.** $0.56\,\text{cm}; \ \dfrac{9\pi}{4}^R$

Find the radius of a circle in which the arc of given length is intercepted by the angle of given degree measure.

EXAMPLE $\overarc{AB}: 8\pi; \quad m°(\alpha) = 120$

SOLUTION Since $m^R(\alpha) = \dfrac{\pi}{180} m°(\alpha)$, you have

$$m^R(\alpha) = \dfrac{\pi}{180} \cdot 120 = \dfrac{2\pi}{3}.$$

Then, since $s = r \cdot m^R(\alpha)$, you have

$$8\pi = r \cdot \dfrac{2\pi}{3} \text{ and } r = 8\pi \cdot \dfrac{3}{2\pi} = 12. \quad \text{Answer.}$$

27. $\overarc{AB}: 15\pi; \quad m°(\alpha) = 300$ **28.** $\overarc{AB}: 21\pi; \quad m°(\alpha) = 150$

29. $\overarc{AB}: \dfrac{9\pi}{4}; \quad m°(\alpha) = 135$ **30.** $\overarc{AB}: \dfrac{8\pi}{5}; \quad m°(\alpha) = 270$