Precalculus

Topic: Angle Measure

Instructions

Solve the following problems related to angle measure. Show all work clearly and check your solutions.

Practice Problems

1. **Find the radian measure of the angle with the given degree measure:**

   (i) $72°$
   (ii) $54°$
   (iii) $-45°$
   (iv) $-300°$
   (v) $1080°$
   (vi) $3960°$
   (vii) $96°$
   (viii) $202.5°$

2. **Find the degree measure of the angle with the given radian measure:**

   (i) $\frac{7\pi}{6}$
   (ii) $\frac{3\pi}{2}$
   (iii) 3
   (iv) 3.4
   (v) $\frac{\pi}{10}$
   (vi) -1.2
   (vii) $\frac{5\pi}{18}$
   (viii) $\frac{2\pi}{15}$

3. **Find an angle between $0°$ and $360°$ that is coterminal with the given angle:**

(i) $733°$
(ii) $135°$
(iii) $1110°$
(iv) $361°$
(v) $-800°$

4. **Determine whether the following angles are coterminal:**

(i) $70°, 430°$
(ii) $-30°, 330°$
(iii) $\frac{5\pi}{6}, 17\pi$
(iv) $32°, 330°$
(v) $155°, 875°$

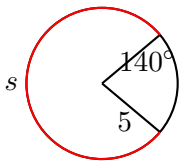
5. **Find an angle between $0°$ and $360°$ that is coterminal with the given angle:**

(i) $733°$
(ii) $361°$
(iii) $1110°$
(iv) $-100°$
(v) $-800°$

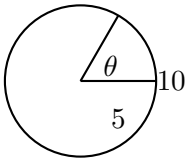
6. **Find an angle between 0 and 2π that is coterminal with the given angle:**

(i) $\frac{17\pi}{6}$
(ii) $-\frac{7\pi}{3}$
(iii) 87π
(iv) 10
(v) $\frac{17\pi}{4}$
(vi) $\frac{51\pi}{2}$

7. **Find the length of the arc s in the figure.**



8. **Find the angle θ in the figure.**



9. **Find the length of an arc that subtends a central angle of $45°$ in a circle of radius 10 m:**

10. **Find the length of an arc that subtends a central angle of 2 rad in a circle of radius 2 mi:**

11. **A central angle θ in a circle of radius 5 m is subtended by an arc of length 6 m. Find the measure of θ in degrees and in radians.**

Multiple-Choice Questions

1. What is the radian measure of $45°$?

   A. $\frac{\pi}{4}$
   B. $\frac{\pi}{2}$
   C. $\frac{\pi}{3}$
   D. $\frac{\pi}{6}$

2. What is the degree measure of $\frac{2\pi}{3}$?

   A. $30°$
   B. $45°$
   C. $60°$
   D. $120°$

3. Which of the following is coterminal with $180°$?

   A. $360°$
   B. $540°$
   C. $720°$
   D. All of the above

4. Which of the following angles is coterminal with $-45°$?

   A. $315°$
   B. $-225°$
   C. $315°$ and $-225°$
   D. None of the above

5. Which of the following is a positive coterminal angle for $405°$?

   A. $45°$
   B. $360°$
   C. $720°$
   D. $90°$

6. Which of the following angles is coterminal with $-270°$?

   A. $90°$
   B. $360°$
   C. $90°$ and $450°$
   D. $90°$ and $630°$