7-3 Additional Practice

Trigonometric Functions and Real Numbers

Find the sine and cosine of each angle.

1. 90° 1; 0
2. 135° $\frac{\sqrt{2}}{2}; -\frac{\sqrt{2}}{2}$
3. 270° −1; 0
4. $\frac{\pi}{6}$ $\frac{1}{2}; \frac{\sqrt{3}}{2}$
5. $\frac{3\pi}{4}$ $\frac{\sqrt{2}}{2}; -\frac{\sqrt{2}}{2}$
6. $\frac{5\pi}{6}$ $\frac{1}{2}; -\frac{\sqrt{3}}{2}$

Find the coordinate of the terminal point for each angle.

7. $\frac{2\pi}{3}$ $\left(-\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$
8. $\frac{\pi}{2}$ (0, 1)
9. $\frac{5\pi}{3}$ $\left(\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$
10. 315° $\left(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$
11. 210° $\left(-\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$
12. 240° $\left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$

Solve.

13. What is the sin θ if cos $\theta = \frac{-6}{10}$ and θ is in Quadrant II? $\frac{8}{10}$
14. What is the cos θ if the sin $\theta = \frac{-16}{20}$ and θ is in Quadrant III? $-\frac{12}{20}$

What is the tangent of each angle?

15. $\frac{11\pi}{6}$ $-\frac{\sqrt{3}}{3}$
16. $\frac{\pi}{4}$ 1
17. $\frac{5\pi}{3}$ $-\sqrt{3}$
18. −750° $-\frac{\sqrt{3}}{3}$
19. 30° $\frac{\sqrt{3}}{3}$
20. 135° −1

Find the secant, cosecant, and cotangent for each angle.

21. $\frac{\pi}{4}$ $\sqrt{2}; \sqrt{2}; 1$
22. $\frac{\pi}{6}$ $\frac{2\sqrt{3}}{3}; 2; \sqrt{3}$
23. $\frac{3\pi}{4}$ $-\sqrt{2}; \sqrt{2}; -1$
24. 330° $\frac{2\sqrt{3}}{3}; -2; -\sqrt{3}$
25. 120° $-2; \frac{2\sqrt{3}}{3}; -\frac{\sqrt{3}}{3}$
26. 240° $-2; -\frac{2\sqrt{3}}{3}; \frac{\sqrt{3}}{3}$

27. Alejandro said the cotangent of 180° is 0. Is he correct? Explain.

Alejandro is incorrect. Sample answer: The cot 180° is undefined. cot $180° = \frac{\cos 180°}{\sin 180°} = -\frac{1}{0}$.

28. Alex is standing at the 2 o'clock position on a circle in the center of a soccer field. He passes the ball to a player who is located at the 10 o'clock position. The radii to the positions of the two players forms a central angle of the circle. What are the degree and radian measures of the angle? 120°; $\frac{2\pi}{3}$