5.2, #66: A lamppost casts a shadow of 18 feet when the angle of elevation of the sun is 33.7°. How high is the lamppost? Round to the nearest foot.

5.2, #79: A scenic overlook along the Pacific Coast Highway in Big Sur, California, is 280 feet above sea level. A 6 foot tall hiker standing at the overlook sees a sailboat and estimates the angle of depression to be 30°. Approximately how far off the coast is the sailboat? Round to the nearest foot.

5.3, #10: If $\csc\theta > 0$ and $\cot\theta < 0$, identify the quadrant that θ lies in.

5.3, Problem: Find the reference angles for the following angles.
(a). $-120°$.

(b). $280°$.

(c). $-\frac{7\pi}{6}$.

(d). 0.6π.

5.3, #31,38,46,49,54: Use reference angles to find the exact values of the following.
(a). $\csc 120°$.

(b). $\cos\left(-\frac{11\pi}{4}\right)$.

(c). $\csc(-5\pi)$.

(d). $\csc\frac{5\pi}{3}$.

(e). $\tan\frac{18\pi}{4}$.

5.3, #56,60,62: For each equation, find two angles between 0 and 2π where the equation holds.
(a). $\cos\theta = -\frac{\sqrt{2}}{2}$.

(b). $\csc\theta = -\frac{2\sqrt{3}}{3}$.

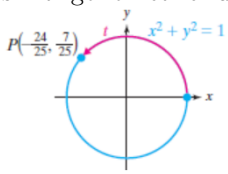
(c). $\cot\theta = 1$.

5.3, #66: Given $\cos\theta = -\frac{5}{8}$ and $\csc\theta > 0$, find $\sin\theta$ and $\tan\theta$.

5.3, #83: Explain why the statement $\cos(\theta + \pi) = -\cos(\theta)$ holds for all θ, or, if false, give a counterexample.

5.4, #12: Does the point $\left(\frac{\sqrt{61}}{8}, -\frac{\sqrt{2}}{8}\right)$ lie on the unit circle?

5.4, #16: The point P on the unit circle below determines an angle in t radians. Evaluate the six trigonometric functions of t.



5.4, #24 Find the coordinates of the point P on the unit circle determined by the real number t and evaluate the six trigonometric functions at t for each of the following t.
(a). $t = \frac{2\pi}{3}$

(b). $t = -\frac{5\pi}{4}$

(c). $t = \frac{5\pi}{6}$

5.4, #34,38 Identify the t values between 0 and 2π for which the following are undefined. Then, using periodicity, find the domains of the following functions.
(a). $f(t) = \tan t$.

(b). $g(t) = \csc t$.

5.4, Problem: For t in Quadrant III,
(a). Write $\cos t$ in terms of $\sin t$.

(b). Write $\tan t$ in terms of $\sec t$.

(c). Write $\csc t$ in terms of $\cot t$.

5.4, #40: Compute the following:
(a). $\cos 90°$.

(b). $\csc \frac{\pi}{2}$.

(c). $\cot 270°$.

(d). $\tan \frac{\pi}{2}$.

(e). $\sec \frac{3\pi}{2}$.

(f). $\sin \frac{\pi}{2}$.

5.4, #44,46,48,52,54,56,80,84: Use the even and/or odd properties and periodicity to evaluate or simplify the following expressions
(a). $\csc 510°$.

(b). $\cot\left(-\frac{19\pi}{3}\right)$.

(c). $\sec\left(\frac{-13\pi}{2}\right)$.

(d). $\sin(t + 2\pi) \cdot \sec(t + 2\pi)$

(e). $\tan(t + \pi) \cdot \csc(t + 2\pi)$.

(f). $\tan(-\theta) - 3\tan\theta$.

(g). $\cot(-3\theta) - 3\cot(3\theta + \pi)$.

(h). $\cot(-t) \cdot \sin(t + 2\pi) + \cos^2(t) \cdot \sec(-t + 2\pi)$.

(i). $\tan^2\left(\frac{2\pi}{3}\right) + \csc^2\left(-\frac{5\pi}{4}\right)$.