



8-1 Additional Practice

Solving Trigonometric Equations Using Inverses

1. How would you restrict the domain of the sine function to define the inverse sine function?
2. Evaluate the inverse trigonometric function at the given value.
 - a. $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$
 - b. $\tan^{-1}\left(\frac{\sqrt{3}}{3}\right)$
3. What are all of the angles in radians that have a sine value of 0.85?
4. What is the value for θ in radians when $0.15 \cos \theta + 1 = 1.30 \cos \theta$ for values between 0 and 2π ?
5. What is the value for θ in radians when $4 \tan \theta - 5 = \tan \theta$ for values between 0 and π ?
6. The total monthly sales of a retail store is modeled by the function $S = 29 \sin(0.18x - 4.8) + 56$, where S is the sales in thousands, x is the month, and $x = 1$ corresponds to January. Use this function to determine the month in which the total sales was approximately \$54,000.
7. Can you find the radian measures of the angles θ whose cosine is -1.75 ? Explain.
8. A simple harmonic motion of a hanging spring is defined by $d = 3 \cos\left(\frac{\pi}{2}t\right) + 9$, where d is the displacement of the end of the spring in inches, and t is the time in seconds.
 - a. Solve the equation for t .
 - b. Find the first time at which the spring is displaced 6 in.
9. Solve the equation $8 \sin^2 \theta - 2 = 0$. Write your answer in radians.