

Assignment

Write

Describe when you would use an inverse sine, inverse cosine, or inverse tangent function.

Remember

The inverse of each of the trigonometric functions—inverse sine (\sin^{-1}), inverse cosine (\cos^{-1}), and inverse tangent (\tan^{-1})—along with a calculator can be used to determine solutions to equations.

Practice

1. Use a periodicity identity to list 3 solutions for each equation.

a. $\sin x = -\frac{\sqrt{2}}{2}$

b. $\cos x = \frac{\sqrt{3}}{2}$

c. $\tan x = \frac{\sqrt{3}}{3}$

2. Solve each equation over the domain of all real numbers.

a. $4 + 2 \sin x = 5$

b. $8 \cos x + 2 = -1$

c. $5 \tan x - 3 = -11$

d. $14 - 3 \sin x = 19$

e. $2 \sin(3x) + 4 = 5$

f. $4 \cos^2 x - 3 = 0$

Stretch

The average person's blood pressure can be modeled by the periodic function $P(t) = 20 \sin(160\pi t) + 100$, where t represents the time in minutes, and $P(t)$ represents the blood pressure at time t . Determine the amplitude, maximum and minimum values, period, and frequency of the function.

Review

1. Given $\cos \theta = -\frac{5}{13}$ in Quadrant III, use the Pythagorean identity to determine $\sin \theta$.

2. Given $\cos \theta = \frac{2}{9}$ in Quadrant IV, determine $\sin \theta$ and $\tan \theta$.

3. Solve each equation. Round your answer to the thousandths.

a. $10^{(x+1)} = 7$

b. $8^{-2a} - 5 = 55$