

3.9 Inverse Trigonometric Functions

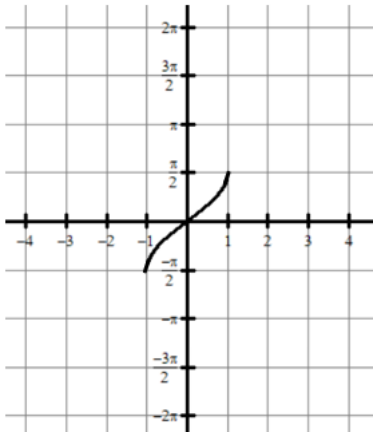
AP Precalculus

Name: _____

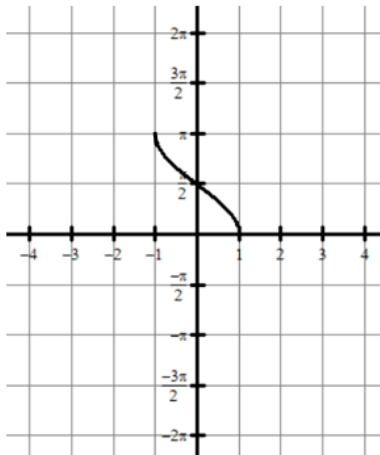
CA #2

The parent function is shown below. Use the parent function to graph $g(x)$.

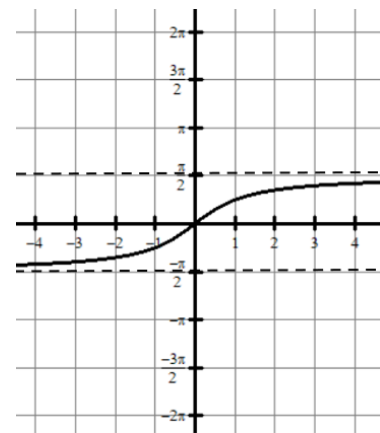
1. $g(x) = 2\sin^{-1}\left(\frac{1}{2}x\right) - \frac{\pi}{2}$



2. $g(x) = 2\cos^{-1}(-(x + 1))$



3. $g(x) = 2\tan^{-1}(x - 1) - \pi$



Find the inverse of each function and list the domain and range of $f^{-1}(x)$.

4. $f(x) = 2\sin(x - \pi) + 1$ for $-\frac{\pi}{2} \leq x \leq \frac{\pi}{2}$

5. $f(\theta) = \frac{1}{2}\cos(2\theta) - 3$ for $0 \leq \theta \leq \frac{\pi}{2}$

Evaluate the following expressions. Find the principal value in radians. NO CALCULATOR!!

6. $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$

7. $\cos^{-1}(-1)$

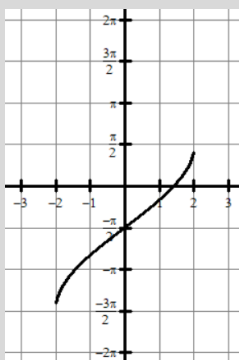
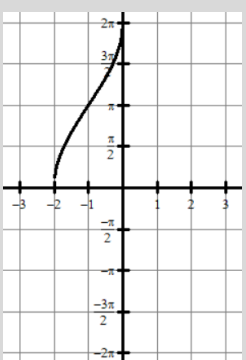
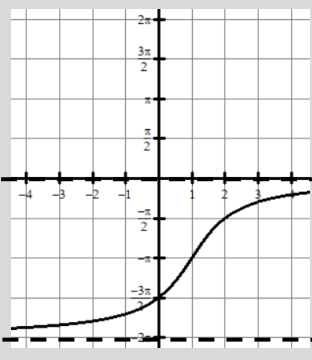
8. $\arctan(-\sqrt{3})$

9. $\arccos\left(-\frac{\sqrt{2}}{2}\right)$

10. $\sin^{-1}\left(\frac{1}{2}\right)$

11. $\arccos\left(\frac{\sqrt{3}}{2}\right)$

Answers to 3.9 CA #2

<p>1.</p> 	<p>2.</p> 	<p>3.</p> 	<p>4.</p> $f^{-1}(x) = \sin^{-1}\left(\frac{x-1}{2}\right) + 5$ <p>Domain: $-1 \leq x \leq 3$</p> <p>Range: $-\frac{\pi}{2} \leq y \leq \frac{\pi}{2}$</p>
<p>5.</p> $f^{-1}(\theta) = \frac{1}{2} \cos^{-1}(2\theta + 6)$ <p>Domain: $-3.5 \leq x \leq -2.5$</p> <p>Range: $0 \leq y \leq \frac{\pi}{2}$</p>	<p>6. $\frac{\pi}{3}$</p>	<p>7. π</p>	<p>8. $-\frac{\pi}{3}$</p>
<p>9. $\frac{3\pi}{4}$</p>	<p>10. $\frac{\pi}{6}$</p>	<p>11. $\frac{\pi}{6}$</p>	