3.9 Inverse Trigonometric Functions

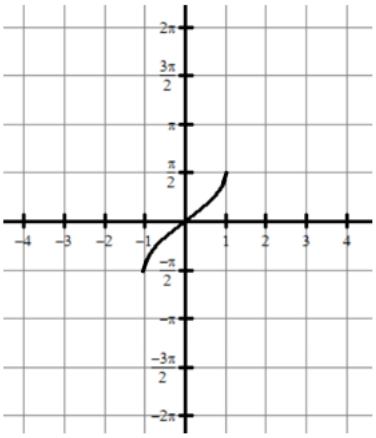
AP Precalculus

Name: _____

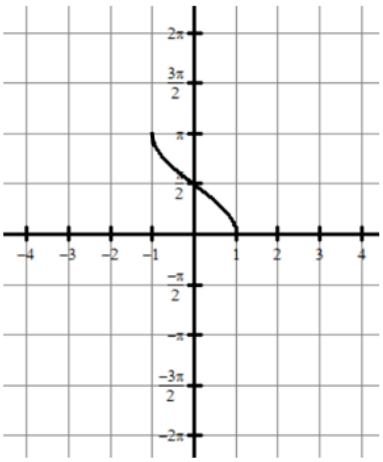
CA #1

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

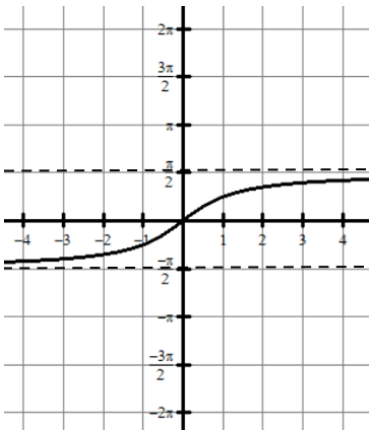
1. $g(x) = \sin^{-1}\left(\frac{1}{2}x\right) - \pi$



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



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



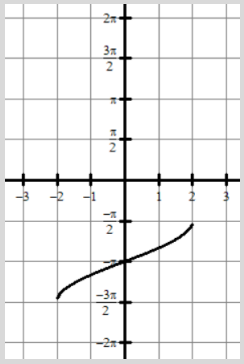
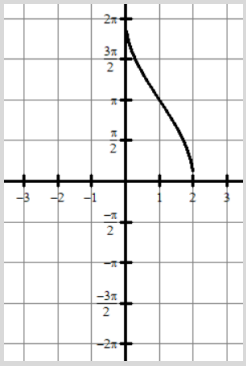
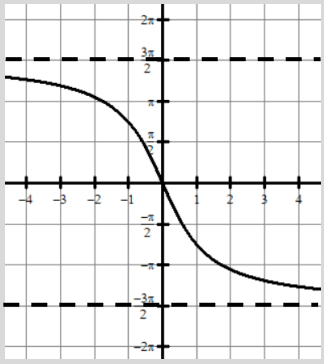
Find the inverse of each function and list the domain and range of $f^{-1}(x)$.

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

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

Evaluate the following expressions. Find the principal value in radians. NO CALCULATOR!!		
6. $\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)$	7. $\cos^{-1}(0)$	8. $\arctan(\sqrt{3})$
9. $\arccos\left(\frac{\sqrt{2}}{2}\right)$	10. $\sin^{-1}\left(-\frac{1}{2}\right)$	11. $\arccos(-1)$

Answers to 3.9 CA #1

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