PRE-CALCULUS **PRACTICE** TEST II

No Calculator

1. Fill in the table.

X	$sin^{-1}(x)$	$cos^{-1}(x)$	$tan^{-1}(x)$
-1			
	π		
	$\frac{\pi}{3}$		
		$\frac{2\pi}{3}$	
		0	
$-\frac{\sqrt{2}}{2}$			
1			
$-\sqrt{3}$			

2. Evaluate the expression algebraically.

a.
$$tan\left(cos^{-1}\left(-\frac{1}{5}\right)\right)$$

b.
$$cos\left(tan^{-1}\left(-\frac{1}{5}\right)\right)$$

- 3. Solve the equations algebraically.
- a. $sec(\theta) = 2$. Find all solutions.

d. $2\cos^2\theta + \cos\theta = 0$ over $0 \le \theta < 2\pi$.

- b. $2\sin^2(\theta) + 1 = 3 \text{ over } -2\pi \le \theta \le 2\pi$.
- e. $sin^2\theta = 2cos\theta + 2$ over $0 \le \theta < 2\pi$.

c. $sin(\theta) = \frac{1}{2}$. Find all solutions.

f. $\sin(2\theta) - 1 = 0$. Find all solutions.

4. If $\cos(\alpha) = \frac{\sqrt{5}}{5}$ where $0 \le \alpha \le \frac{\pi}{2}$, and $\sin(\beta) = -\frac{4}{5}$ where $-\frac{\pi}{2} \le \beta < 0$; then find a. $\sin(\alpha + \beta)$ b. $\cos(\alpha + \beta)$ c. $\sin(\alpha - \beta)$ d. $\cot(\beta)$

5. Prove the identities.

a.
$$\sin(x) \cdot \csc(x) - \cos^2(x) = \sin^2(x)$$

c.
$$sin(\alpha + \beta) + sin(\alpha - \beta) = 2 sin \alpha cos \beta$$

b.
$$(1 - \cos^2 \theta)(1 + \cot^2 \theta) = 1$$

e.
$$tan^{2}(x)cos^{2}(x) + cot^{2}(x)sin^{2}(x) = 1$$

6. Find the exact values of a. sin(75)

b.
$$\cos\left(\frac{11\pi}{12}\right)$$

Calculator

Colorado. Sightings to the same point at water level directly under the bridge are taken is side of the 880-foot long bridge, as indicated in the figure. How high is the bridge? 2. A boy is flying two kites at the same time. He has 380 feet of line out to one kite and 420 line out to the other kite. He estimates the angle between the two lines to be 30°. Approthe nearest tenth (one decimal place) of a foot, the distance between the kites. Show all stance between the kites.		. The highest bridge in the world is the bridge ov
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