

Circuit Training

Unit 7 Review

Name: _____

Directions: Begin in cell #1. Show the work necessary to arrive at your answer. Search for your answer in one of the other cells and mark that cell #2, then work out the new problem. Proceed in this manner until you complete the circuit and arrive back at the first box. You do **not** need a calculator to complete this circuit.

<p># <u>1</u> _____ Answer: $\frac{\sqrt{6} + \sqrt{2}}{4}$</p> <p>Consider the function $f(\theta) = \tan\left(\frac{\theta}{2}\right)$. What is $f\left(\frac{3\pi}{2}\right)$?</p>	<p># _____ Answer: 3</p> <p>What is the period of $y = \tan\left(\frac{\pi}{4}x\right)$?</p>
<p># _____ Answer: $\frac{\pi}{2}$</p> <p>Find all zeros of the function $g(x) = 4\cos^2x - 3$ on the interval $[0, 2\pi]$.</p>	<p># _____ Answer: -1</p> <p>The tangent function is always _____ on its domain.</p> <ol style="list-style-type: none"> 1. increasing 2. decreasing 3. concave up 4. concave down
<p># _____ Answer: 2</p> <p>Ken's distance above the ground (in inches) after t minutes on Barbie's Ferris wheel is given by $h(t) = 3\cos(\pi t) + 4$. What is Ken's maximum height?</p>	<p># _____ Answer: no solution</p> <p>Given $\csc \omega = \frac{5}{3}$ and $\frac{\pi}{2} \leq \omega \leq \pi$.</p> <p>Find $\sin \omega =$ _____ $\cos \omega =$ _____ $\sec \omega =$ _____ $\tan \omega =$ _____ $\cot \omega =$ _____</p> <p>Search for the smallest value.</p>
<p># _____ Answer: $\frac{\pi}{6}, \frac{\pi}{2}, \frac{5\pi}{6}, \frac{3\pi}{2}$</p> <p>Find an exact value for $\cos \frac{\pi}{12}$.</p>	<p># _____ Answer: 5</p> <p>Solve $\cos x = \sin(2x)$ for $0 \leq x \leq 2\pi$.</p>
<p># _____ Answer: 1</p> <p>At the x-values where $f(x) = \cos x$ has a relative maximum, $g(x) = \sec x$ has a</p> <ol style="list-style-type: none"> 1. Vertical asymptote 2. Relative maximum 3. Relative minimum 4. X-intercept 	<p># _____ Answer: 4</p> <p>$\tan^{-1}(-1) =$</p>



<p># _____ Answer: $\frac{\pi}{4} + k\pi$, k integer</p> <p>$\cot\left(\sin^{-1}\left(-\frac{1}{2}\right)\right) =$</p>	<p># _____ Answer: $-\frac{\pi}{4}$</p> <p>$\sin^{-1}\left(\frac{1}{2}\right) =$</p>
<p># _____ Answer: $\frac{5\pi}{6} + 2k\pi$, $\frac{7\pi}{6} + 2k\pi$, k integer</p> <p>$\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right) =$</p>	<p># _____ Answer: $\frac{7\pi}{6}, \frac{11\pi}{6}$</p> <p>What is the first vertical asymptote to the right of the origin for $y = \tan x$? (sketch tangent!)</p> <p>$x =$ _____</p>
<p># _____ Answer: $\frac{5\pi}{6}$</p> <p>Solve $\tan \beta = 1$.</p>	<p># _____ Answer: $-\sqrt{3}$</p> <p>Solve $5 - 2 \sin \theta = 6$, $0 \leq \theta \leq 2\pi$.</p>
<p># _____ Answer: $\frac{\pi}{6}$</p> <p>Solve $\cos \alpha = -\frac{\sqrt{3}}{2}$.</p>	<p># _____ Answer: $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$</p> <p>Ken's distance above the ground (in inches) after t minutes on Barbie's Ferris wheel is given by $h(t) = 3 \cos(\pi t) + 4$. How many minutes does it take for the wheel to make a full revolution?</p>
<p># _____ Answer: 7</p> <p>Solve $-15 = -10 + 10 \sec x$ where $0 \leq x \leq 2\pi$.</p>	<p># _____ Answer: $-\frac{4}{3}$</p> <p>$5\cos^2 y + 5\sin^2 y =$</p>