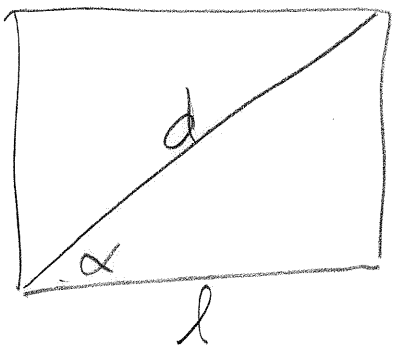
#65 10/15/2012 - Exam 2 Review Math 1060



$d\cos\alpha = \frac{l}{d}\cdot d$ $d\cdot\sin\alpha = \frac{w}{d}\cdot d$

$l = d\cos\alpha$

$w = d\sin\alpha$

$A = l\cdot w$

$= d\cos\alpha \cdot d\sin\alpha$

$= \frac{d^2}{2}(2\cos\alpha\sin\alpha)$ $= \sin 2\alpha$

$$\boxed{A = \frac{d^2}{2}\sin 2\alpha}$$

$$= \frac{d^2\sin 2\alpha}{2}$$

$\frac{3x}{2} = \frac{3}{2}x$

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$$\frac{1-\cos^2\left(\frac{x}{2}\right)}{1-\sin^2\left(\frac{x}{2}\right)} = \frac{1-\cos x}{1+\cos x}$$

~~WOA an identity~~

$x = 60$

$\frac{x}{2} = 30$

$\frac{1-\cos^2 30}{1-\sin^2 30} = \frac{1-\cos 60}{1+\cos 60}$

$\frac{1-\left(\frac{\sqrt{3}}{2}\right)^2}{1-\left(\frac{1}{2}\right)^2} = \frac{1-\frac{1}{2}}{1+\frac{1}{2}}$

$\frac{1-\frac{3}{4}}{3/4} = \frac{1/2}{3/2}$ $\cdot\frac{2}{3}$

$\frac{1/4}{3/4}\cdot\frac{4}{3} = \frac{1}{3}$

$$\frac{1-\cos^2\left(\frac{x}{2}\right)}{1-\sin^2\left(\frac{x}{2}\right)}$$

$$\left(\cos\left(\frac{x}{2}\right)\right)^2=\left(\pm\sqrt{\frac{1+\cos x}{2}}\right)^2$$

$$\cos^2\left(\frac{x}{2}\right)=\frac{1+\cos x}{2}$$

or

$$\frac{1-\frac{1+\cos x}{2}}{1-\frac{1-\cos x}{2}}$$

$$\frac{\sin^2\left(\frac{x}{2}\right)}{\cos^2\left(\frac{x}{2}\right)}$$

alternate ^{2}

$$\tan^2\left(\frac{x}{2}\right)=\left(\pm\sqrt{\frac{1-\cos x}{1+\cos x}}\right)^2$$

$$=\frac{1-\cos x}{1+\cos x}$$

$$\frac{\frac{1-\cos x}{2}}{\frac{1+\cos x}{2}}\cdot\frac{2}{1+\cos x}$$

$$\boxed{\frac{1-\cos x}{1+\cos x}=\frac{1-\cos x}{1+\cos x}}$$

$3\sin(2x+\pi)+4$ $\quad B$

$[2(x+\frac{\pi}{2})]$

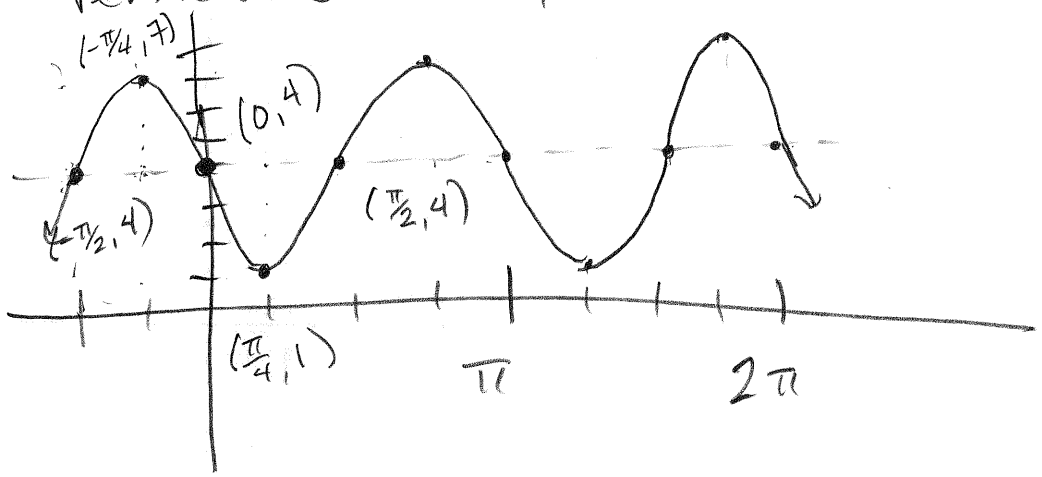
Amp = 3

Period = $\frac{2\pi}{B}$ ← for sine cosine cosecant secant

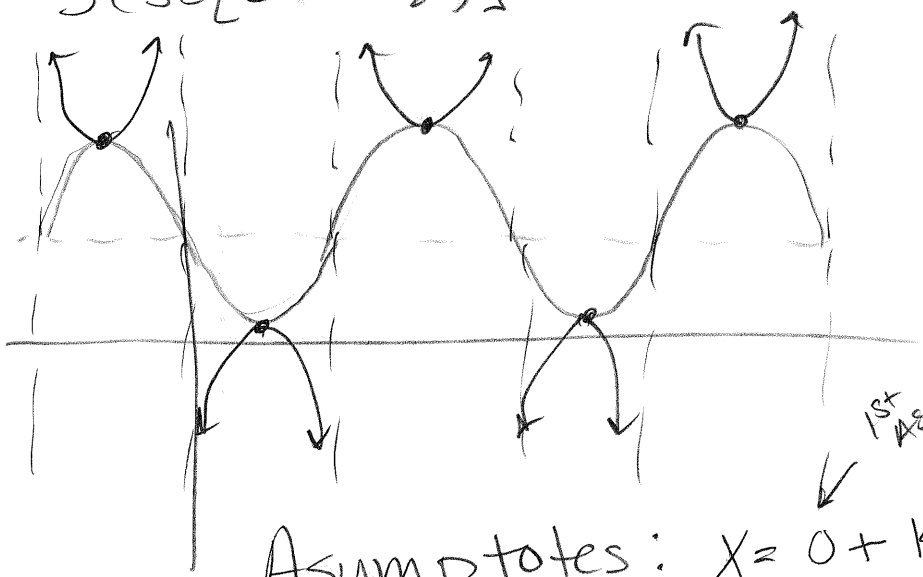
Period = π $\quad = \frac{2\pi}{2}$

Phase Shift = $-\frac{\pi}{2}$ $\quad = \pi$

Vertical Shift = 4



$3\csc[2(x+\frac{\pi}{2})]+4$



1st Asymptote

½ the period

Asymptotes: $x = 0 + K\frac{\pi}{2}$

$x = \frac{\pi K}{2}$

for tangents/cotangents

Asymptotes; $x = {}^{1st}\text{Asympote} + K \cdot \text{period}$