

Semester 1 Final: Review 2**Find the amplitude, period, vertical displacement, and phase displacement.**

1) $y = 6 \sin(4x) - 1$ 2) $y = 7 \tan(3x)$ 3) $y = \frac{1}{3} \cos\left[\frac{1}{2}(x + \pi)\right]$ 4) $y = 3 \tan\left[2\left(x + \frac{\pi}{4}\right)\right] + 2$

Graph each function. Show at least one complete period.

5) $y = \sin(x)$ 6) $y = \tan(x)$ 7) $y = \sec(x)$

Complete each equation.

8) $\cos(A - B) =$ 9) $\sin(A + B) =$ 10) $\tan(A - B) =$ 11) $\cos 47^\circ = \sin ?$
 12) $\tan 62^\circ = \cot ?$ 13) $\sin^2 x + \cos^2 x =$ 14) $\cot^2 x + 1 =$ 15) $1 - \sec^2 x =$

Prove each identity.

16) $\frac{\sin x}{1 - \cos x} + \frac{1 - \cos x}{\sin x} = 2 \csc x$ 17) $\sin x (\csc x - \sin x) = \cos^2 x$

18) $(\sec \theta + 1)(\sec \theta - 1) = \tan^2 \theta$ 19) $(\sin x - \cos x)^2 = 1 - 2 \sin x \cos x$

Given that $\cos A = \frac{3}{5}$ and A is in Quadrant IV and $\sin B = \frac{5}{13}$ and B is in Quadrant II, find:

20) $\sin A$ 21) $\cos B$ 22) $\tan A$ 23) $\cos(A - B)$ 24) $\sin(2A)$ 25) $\tan(2B)$

26) Given that $\tan x = \frac{\sqrt{3}}{3}$, find $\tan(2x)$. 27) Given that $\tan x = 4$, find $\tan(2x)$.

Graph each inverse by creating a table of values and a graph for the sin or cos function, then use this information to create a table of inverse values and graph the given inverse function.

28) $y = \sin^{-1}(x)$ 29) $y = \text{Arc sin}\left(\frac{1}{2}x\right)$ 30) $y = \text{Arc cos}(x)$ 31) $y = \text{Cos}^{-1}(2x)$

Evaluate.

32) $\tan\left(\cos^{-1}\left(\frac{1}{2}\right)\right)$ 33) $\sin^{-1}\left(\sin\left(\frac{\pi}{6}\right)\right)$ 34) $\text{Arc cos}\left(\cos\left(\frac{\pi}{3}\right)\right)$ 35) $\sin^{-1}(0)$

36) $\cos\left(\text{Arc sin}\left(\frac{1}{3}\right)\right)$ 37) $\sin^{-1}\left(\cos\left(\frac{\pi}{6}\right)\right)$ 38) $\cos^{-1}\left(\cos\left(\frac{-\pi}{4}\right)\right)$ 39) $\cos^{-1}(-1)$

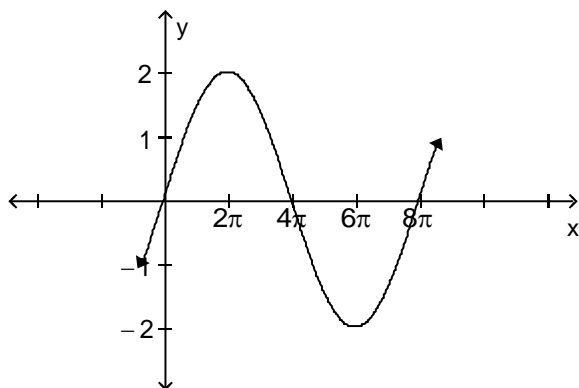
Using sum and difference formulas, find the exact values of the following:

40) $\sin(165^\circ)$ 41) $\cos(15^\circ)$

42) Set up the different ways we could solve: a) $\sin(5\theta)$ b) $\cos(4x)$

Write an equation for each graph.

43)



44)

