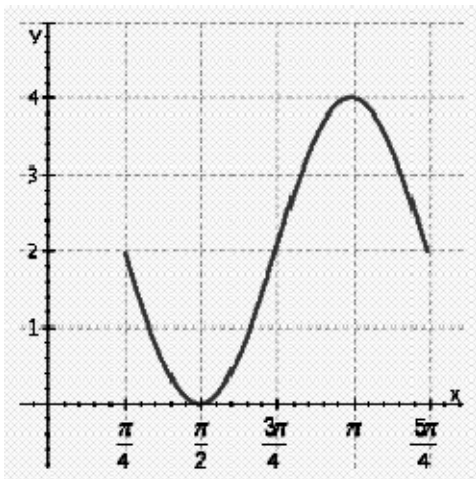
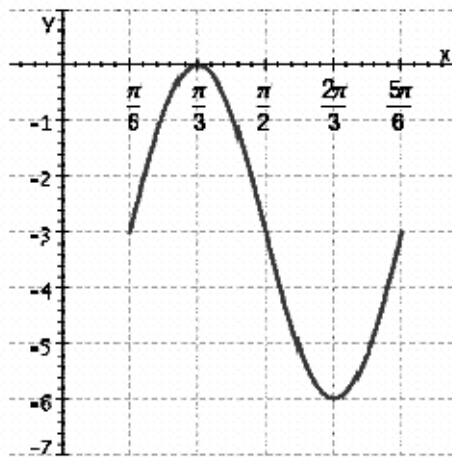


No Calculator Section

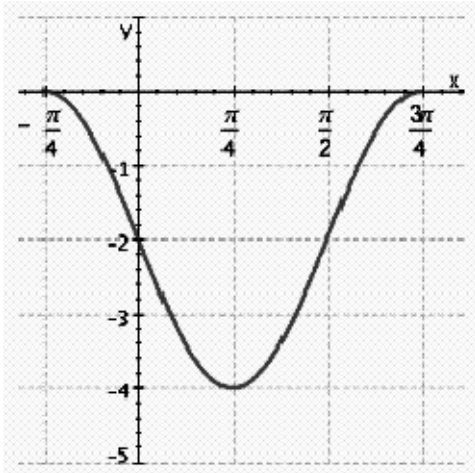
(1) The graph below is one complete cycle of the graph of an equation containing a trigonometric function. Find an equation to match the graph.



(a)



(b)



(c)

(2) Evaluate without using a calculator.

(a) $\cos^{-1}(\cos 150^\circ)$

(b) $\tan^{-1}\left(\tan \frac{3\pi}{4}\right)$

(c) $\sec\left(\tan^{-1} \frac{3}{4}\right)$

(d) $\sec\left(\cos^{-1} \frac{1}{\sqrt{6}}\right)$

(3) Give the following Sum or Difference formulas

$\cos(A + B) =$

$\cos(A - B) =$

$\sin(A + B) =$

$\sin(A - B) =$

$\tan(A + B) =$

$\tan(A - B) =$

(4) Give the following Double angle formulas

$$\sin 2A =$$

$$\cos 2A =$$

=

=

$$\tan 2A =$$

(5) Give the following Half angle formulas

$$\sin \frac{A}{2} =$$

$$\tan \frac{A}{2} =$$

$$\cos \frac{A}{2} =$$

$$\tan \frac{A}{2} =$$

(6) Evaluate the expression without using a calculator. (Assume the variable represents a positive number.)

$$\tan \left(\sin^{-1} 4x \right)$$

For each equation, graph one complete cycle. State the amplitude and period. Label the x-axis with the 5 key x-values.

$$y = 3 + \sin \left(\pi x - \frac{\pi}{2} \right)$$

$$y = -2 + \sec \left(\frac{1}{2} x - \frac{\pi}{3} \right)$$

$$y = -1 - \tan \left(\frac{1}{2} x + \frac{\pi}{4} \right)$$

Calculator Section

(4) Find the exact value of the following

(a) $\sin 75^\circ$

(b) $\tan 105^\circ$

(5) Let $\tan \theta = \frac{5}{12}$ with θ in QI and find

(a) $\cos 2\theta$

(b) $\csc 2\theta$

(6) If $\sin \theta = -\frac{1}{3}$ with θ in QIII, find

(a) $\sin \frac{\theta}{2}$

(b) $\tan \frac{\theta}{2}$

(7) Rewrite each expression as a sum or difference, then simplify.

$$\cos 2x \sin 8x$$

(8) Rewrite each as a product. Simplify if possible.

$$\sin 75^\circ - \sin 15^\circ$$

(9) Write the expression as an equivalent expression involving x only. (Assume x is positive.)

$$\sin \left(\sec^{-1} \frac{x+1}{3} \right)$$

(10) Verify the identity

$$\frac{\cos t}{1 + \sin t} = \frac{1 - \sin t}{\cos t}$$

(11) For each of the following, solve for (a) all radian solutions and (b) x if $0 \leq x < 2\pi$.

(a) $\sqrt{3} + 5 \sin t = 3 \sin t$

(b) $2 \cos^2 x + \cos x - 1 = 0$

(12) For each of the following, solve for x if $0^\circ \leq x < 360^\circ$.

(a) $\cos 2x - \cos x - 2 = 0$

(b) $\sin x - \sqrt{3} \cos x = \sqrt{3}$

(13) Find all degree solutions for each of the following.

(a) $\sin 2x = -\frac{\sqrt{3}}{2}$

(b) $\sin(A + 50^\circ) = \frac{\sqrt{3}}{2}$

(14) Eliminate the parameter t .

(a) $x = 2 \cos t, y = 2 \sin t$

(b) $x = 3 \sin t, y = 4 \cos t$

(c) $x = \cos t - 3, y = \sin t + 2$

(d) $x = 3 \cot t, y = 3 \csc t$