

CHAPTER 6 OBJECTIVE SOLUTIONS:

1a)  $150^\circ$     1b)  $\frac{11\pi}{9}$  or 3.84    1c)  $\frac{88\pi}{9}$  or 30.72    1d)  $\frac{1}{2}(5.5)\frac{5\pi}{3} = 14.4\text{cm}^2$

2a)  $7.4\pi$  rad or 23.25 rad.    2b) 4.67 rad/sec    2c)  $77\pi$  or 241.90 cm/sec

3a)  $y = C + A\sin B(x - D)$  or  $y = C + A\cos B(x - D)$

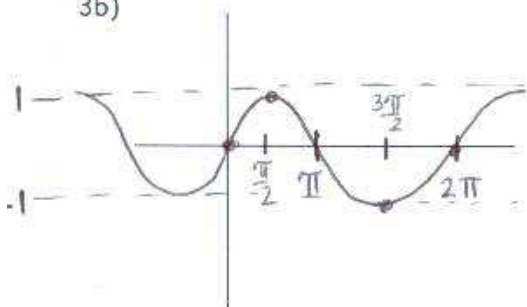
A—Amplitude

B—# of cycles in  $2\pi$  (helps us find period)

C—Vertical Displacement

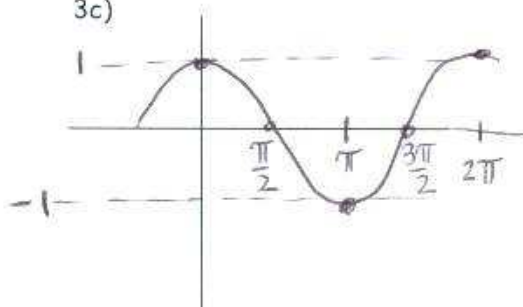
D—Horizontal Displacement (phase shift)

3b)



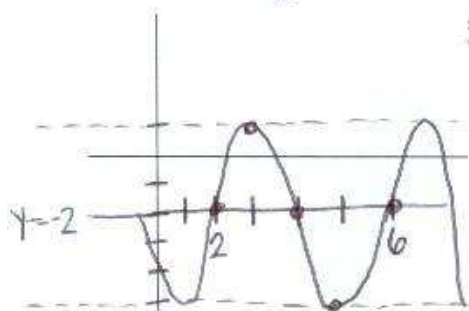
$y = \sin x$

3c)



$y = \cos x$

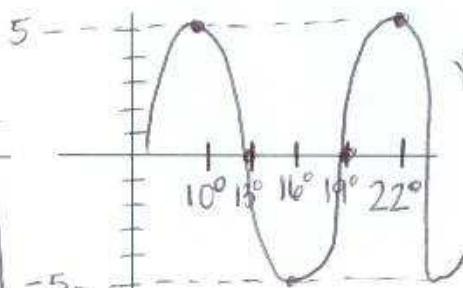
3d)  $y = -2 + 3\sin\frac{\pi}{2}(x-2)$



$P = \frac{2\pi}{\frac{\pi}{2}} = 4$

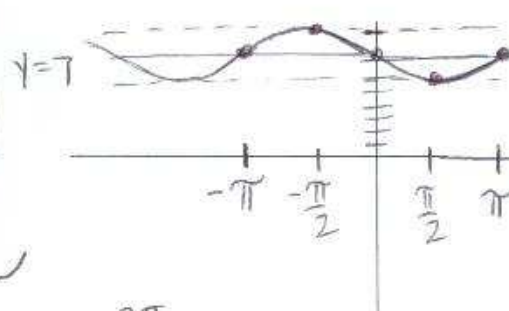
3g)  $y = 2 + 5\cos 8(\theta - 15^\circ)$

3e)  $y = 5\cos 30(\theta - 10^\circ)$



$P = \frac{360}{30} = 12^\circ$

3f)  $y = 7 + \sin(x + \pi)$



$P = \frac{2\pi}{1} = 2\pi$

3h)  $y = 0.25\sin\frac{2}{11}(x)$

6a)  $C = \frac{0.82 + 0.08}{2} = 0.45$

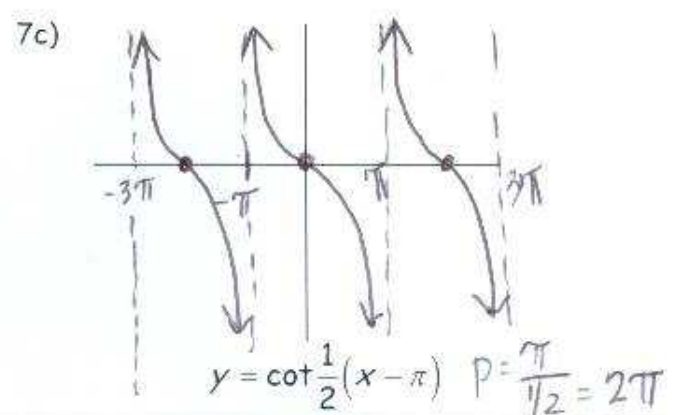
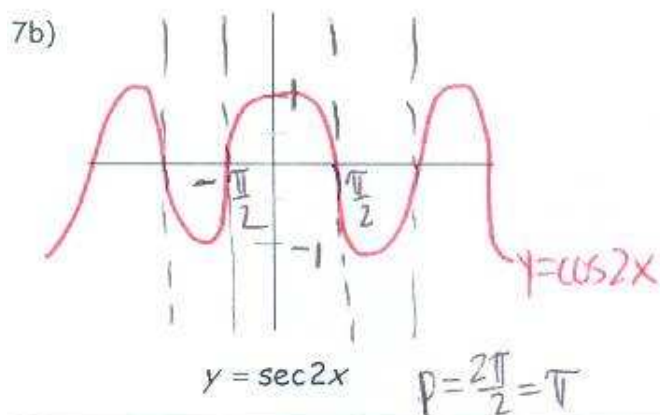
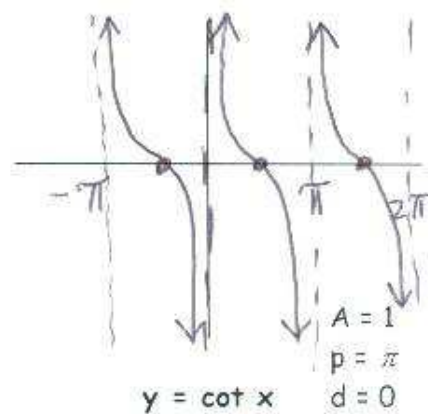
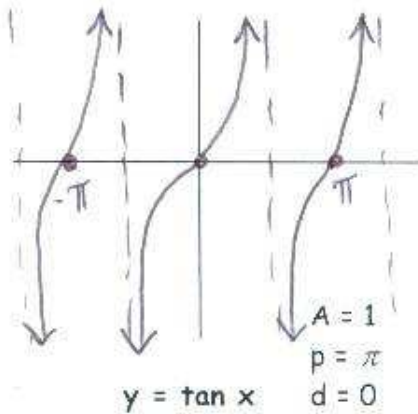
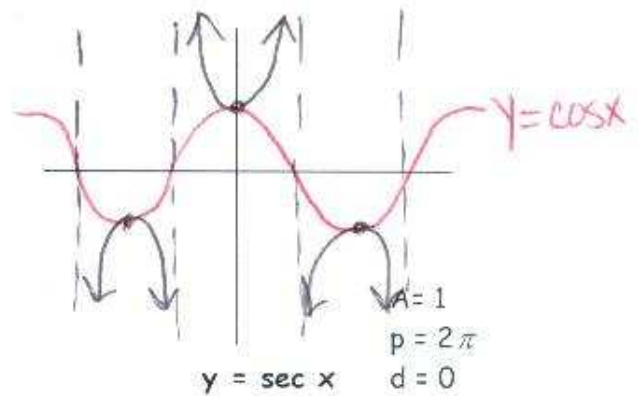
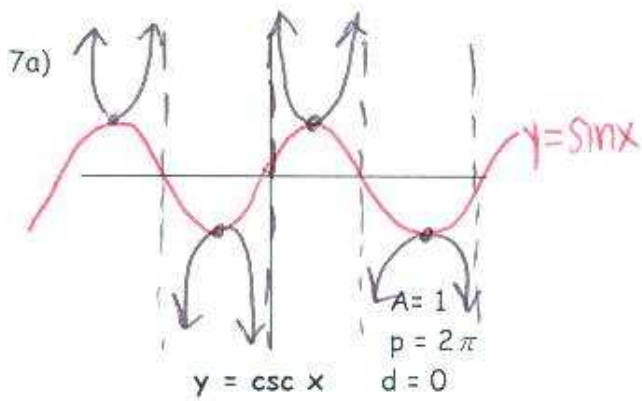
$A = \frac{0.82 - 0.08}{2} = 0.37$     D = none

$B = \frac{2\pi}{p} = \frac{2\pi}{4} = \frac{\pi}{2}$

$y = 0.45 + 0.37\cos\frac{\pi}{2}(x)$

6b)  $y = 0.45 + 0.37\cos\frac{\pi}{2}(5.5) = .19$

The lungs have about 0.19 liter of air at 5.5 seconds.



8a) Restricted Range	$y = \sin^{-1} x$	$-\frac{\pi}{2} \leq y \leq \frac{\pi}{2}$	Quadrants I, IV
	$y = \cos^{-1} x$	$0 \leq y \leq \pi$	Quadrants I, II
	$y = \tan^{-1} x$	$-\frac{\pi}{2} < y < \frac{\pi}{2}$	Quadrants I, IV

8b) None of the inverses of trig functions are functions; therefore, we restrict the range to make the inverse a function

8c)  $\tan^{-1}(-1) = 315^\circ$  or  $\frac{7\pi}{4}$

8d)  $\text{Arc cos}\left(-\frac{\sqrt{2}}{2}\right) = 135^\circ$  or  $\frac{3\pi}{4}$

8e)  $\tan\left(\sin^{-1}\frac{\sqrt{3}}{2}\right) = \tan\left(\frac{\pi}{4}\right) = 1$