

72)  $a=4, b=\frac{4\pi}{7}$

73) 15.90sec

74) 972,000ft  
OR  
≈ 184 miles

75) a) 1am  
b) 8.90ft, 10.52ft  
c) 4:06am

81) true

82) false

83) D

84) D

85)  $\pi/210$

72)  $h = a \sin b$

$a=4$

$P=3.5$  so  $\frac{7}{2} = \frac{2\pi}{b}$   
 $7b = 4\pi$   
 $b = \frac{4\pi}{7}$

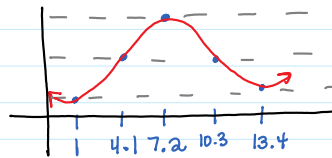
73)  $a=25$   
 $P=40\text{sec}$

$y = -25 \cos\left(\frac{\pi}{20}x\right) + 30$   
 $50 = -25 \cos\left(\frac{\pi}{20}x\right) + 30$   
 $20 = -25 \cos\left(\frac{\pi}{20}x\right)$   
 $-\frac{4}{5} = \cos\left(\frac{\pi}{20}x\right)$   
 $\cos^{-1}\left(-\frac{4}{5}\right) = \frac{\pi}{20}x$   
 $2.50 = \frac{\pi}{20}x$   
 $x \approx 15.90\text{sec}$



74)  $L = 540 \frac{\text{ft}}{\text{s}} \times 1800\text{s} = 972,000\text{ft}$   
or  
 $\approx 184\text{ miles}$

75)



$y = 2 \cos\left(\frac{\pi}{6.2}(x-7.2)\right) + 9$

a) 1am  
b)  $x=4 \Rightarrow 8.90\text{ft}$   
 $x=21 \Rightarrow 10.52\text{ft}$   
c)  $9 = 2 \cos\left[\frac{\pi}{6.2}(x-7.2)\right] + 9$   
 $0 = \cos\left[\frac{\pi}{6.2}(x-7.2)\right]$   
 $1.57 = \frac{\pi}{6.2}(x-7.2)$   
 $3.1 = x-7.2$   
 $10.3 = x$   
 $-6.2$   
 $4.1 \Rightarrow 4:06\text{am}$

81)  $\frac{2\pi}{2} = \pi$     $\frac{4\pi}{2} = 2\pi$    TRUE!

82)  $y = A \cos(Bx + C) + K$    FALSE!!

83) D

84) D

85)  $\frac{2\pi}{420} = \frac{\pi}{210}$