Homework 5 Math 48C Mitchell Schoenbrun
8.5 P. 567 #2, 4, 6, 14, 16, 25, 42

2. $y = 7\cos\left(0.5\left(t+4\right)\right)-2$

Period = $\frac{2\pi}{.5} = 4\pi$

Amplitude = $\left|7\right| = 7$

Midline $y = -2$

4. $y = 3\sin\left(\pi\left(t-2\right)\right)-0.8$

Period = $\frac{2\pi}{\pi} = 2$

Amplitude = $\left|3\right| = 3$

Midline $y = -.8$

6. $-2\cos\left(t-2\right)-3.5$

vertical-shift = -3.5
horizontal-shit = 2

14.

$y = 2\cos\left(\pi x\right)+3$

or

$y = 2\sin\left(\pi\left(x+.5\right)\right)+3$

16.

$y = 5\sin\left(2\pi x\right)$

or

$y = 5\cos\left(2\pi\left(x+.25\right)\right)$

25.

max = .7
min = .3

D = midline $y = \frac{.7+.3}{2} = .5$

A = Amplitude = $\frac{.7-.3}{2} = .2$

B = $\frac{2\pi}{Period} = \frac{2\pi}{9-1} = \frac{2\pi}{8} = \frac{\pi}{4}$

C= 3

$y = .2\cos\left(\frac{\pi}{4}\left(x-3\right)\right)+.5$

42.

a)

max = 15.98
min = 8.43

D = midline $y = \frac{15.98+8.43}{2} = 12.2$

A = Amplitude = $\frac{15.98-8.43}{2} = 3.78$

B = $\frac{2\pi}{Period} = \frac{2\pi}{365\ days} = .0172$

C= 0

$y = 3.78\sin\left(.0172x\right)+12.2$

b) Daylight hours will be 13 at:
12 and 170

c) H(30) = 14, H(120) = 15.5

Avg = $\frac{15.5-14.0}{120-30} = \frac{1.5}{90} = .017$