

## HOMEWORK 8-6

1. c

2. d

$$3. f(x) = 3 \sin\left(\frac{\pi}{4}x\right) - 4$$

$$4. f(x) = 5 \cos\left(\frac{\pi}{4}x\right) + 4$$

$$5. f(x) = 2 \cos\left(\frac{\pi}{6}x\right) - 5$$

$$6. f(x) = -3 \sin\left(\frac{\pi}{4}x\right) + 3$$

$$7. f(x) = -50 \sin\left(\frac{\pi}{4}x\right) + 20$$

$$8. f(x) = 20 \cos\left(\frac{\pi}{6}x\right) + 5$$

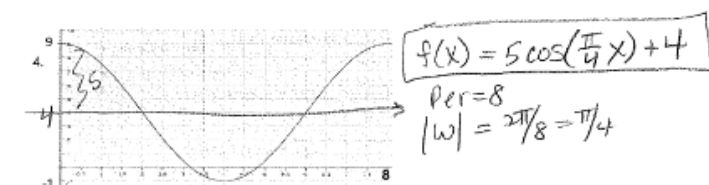
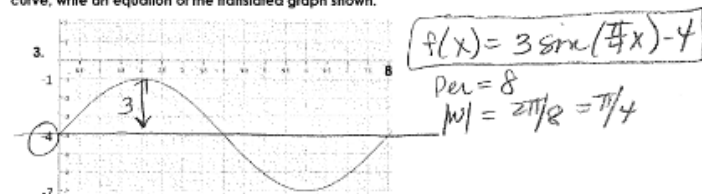
$$9. h(t) = -20 \cos\left(\frac{\pi}{4}t\right) + 20$$

Name: Kay  
 Period: \_\_\_\_\_

Algebra 2 Homework 11.5

1. If  $f(x) = 3\sin(2x) + 4$ , what is the maximum value of  $y$ ?  $3+4=7$   
 a. 3 b. 24 c. 7 d. 10
2. If  $f(x) = 2\cos\left(\frac{1}{2}x\right) - 3$ , what is the minimum value of  $y$ ?  
 a. -3 b. -2 c. -1 d. 5  
 $-2-3=-5$

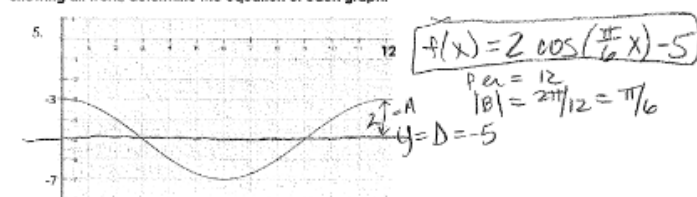
In 3 and 4, if each of the following graphs represents a vertical translation of a basic sine or cosine curve, write an equation of the translated graph shown.

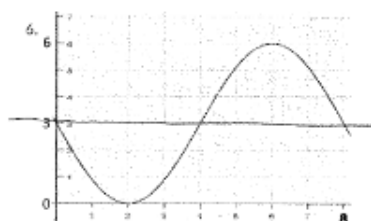


For 5–8, each of the following graphs can be modeled by the equation:

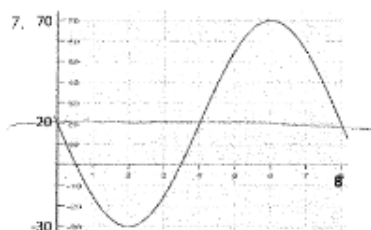
$$f(x) = A \sin(Bx) + D \text{ or } f(x) = A \cos(Bx) + D$$

Showing all work, determine the equation of each graph.

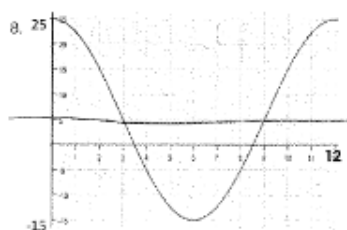




$$f(x) = -3 \sin\left(\frac{\pi}{4}x\right) + 3$$



$$f(x) = -50 \sin\left(\frac{\pi}{4}x\right) + 20$$



$$f(x) = 20 \cos\left(\frac{\pi}{6}x\right) + 5$$

9. A person gets on a Ferris wheel at its lowest point, with a radius of 20 meters. The ride took 4 minutes and made 30 complete revolutions. Write the equation that represents the height,  $h(t)$ , as a function of time in seconds.

Hint: Period = length of one cycle (in seconds)

amplitude = 20 m (rider goes 20m above and below center)

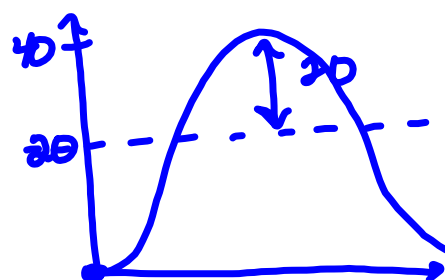
$a = -20$  Start at bottom

Per =  $4 \text{ min} \times 60 \text{ sec} = 8 \text{ sec/cycle}$

$|w| = \frac{2\pi}{8} = \pi/4$

$R = 20 \text{ m}$  (radius of wheel)

$$h(t) = -20 \cos\left(\frac{\pi}{4}t\right) + 20$$



$$4 \times 60 = \frac{240 \text{ sec}}{30 \text{ rev}} = 8 \text{ sec/rev}$$

## Day 7: Mixed Problems

Start in  
class -  
Finish for Homework