

Ch 6 Test

Name: _____

14 /33

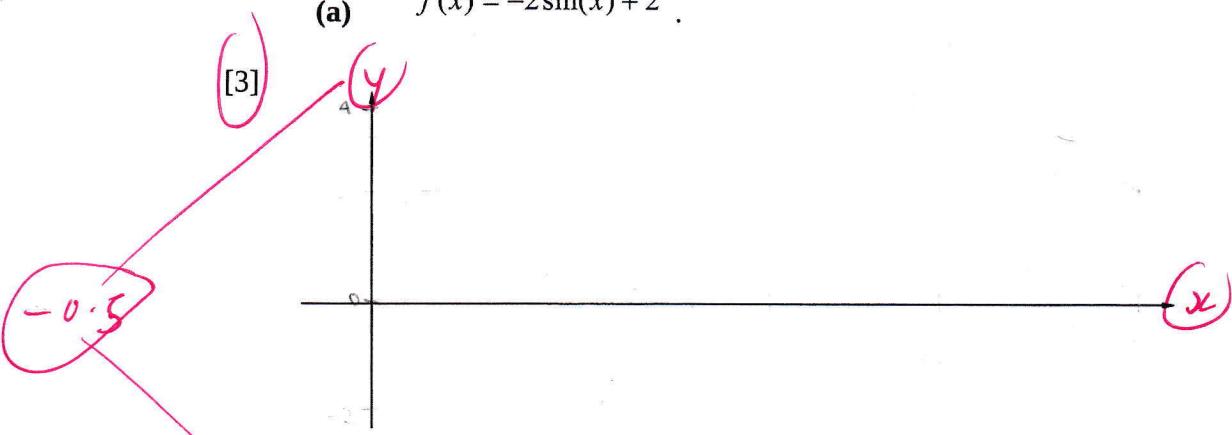
1. State $y = \cos x$ in terms of sin _____ 

2. For the trig function $f(x) = -2 \cos(3x - 120) - 1$

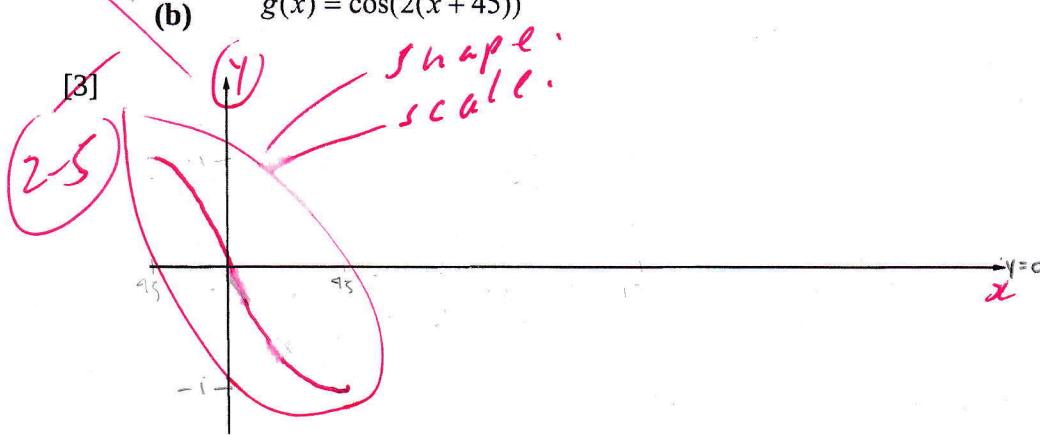
- (a) the phase shift _____ 
- (b) the amplitude _____ 
- (c) the period _____ 
- (d) the axis $y =$ _____ 
- (e) the max _____ 
- (f) the min _____ 

3. Sketch one period of the following functions. Include a scale and label all important points and the axis. (important points are at every quarter of a period.)

(a) $f(x) = -2 \sin(x) + 2$



(b) $g(x) = \cos(2(x + 45))$



4. Write the following function in terms of \sin $f(x) = -2 \cos(3x - 120) - 1$

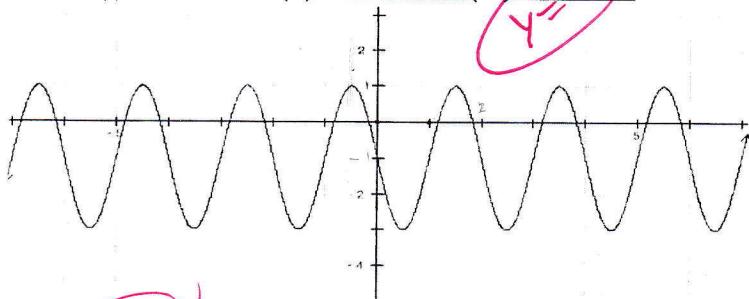
(6.5) [2]

5. (a) State the (i) period, (ii) amplitude, and (iii) equation of the axis

(3)

(2.5)

(i) _____ (ii) _____ (iii) _____



- (b) State a function in terms of **cosine** that represents this graph

(3)

(2.5)

$$\Rightarrow f(x) =$$

6. The diameter of a car's tire is 60 cm. While the car is being driven, the tire picks up a nail.

- (a) **Draw a graph** and **write a trig function** that describes the height of the nail above the ground as a function of the distance the car has traveled after picking up the nail.

(4)

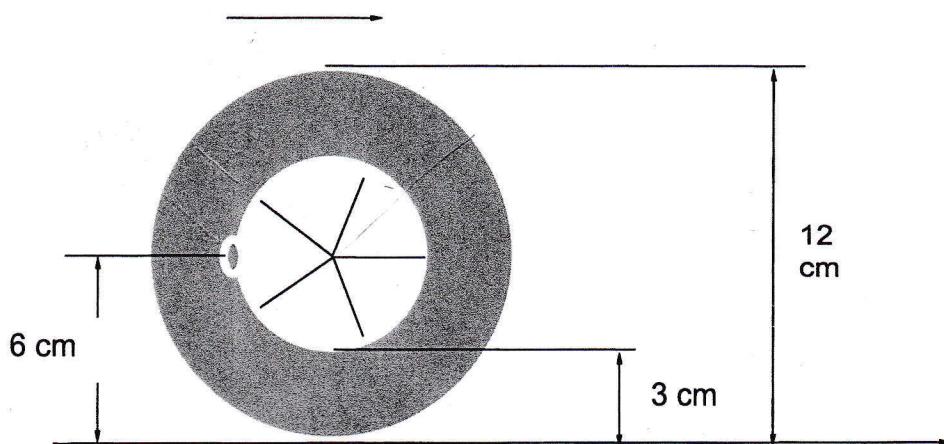
Sin graph

(1)

- (b) How high above the ground is the nail after the car has traveled 1.2 km?

13.5

7.



Above is a diagram of a wheel rolling to the right on the floor. The valve stem is on the inside of the wheel indicated by the dot that is 6 cm above the ground.

- (a) Determine the sinusoidal function that describes the height of the valve stem above the ground as a function of distance that the wheel has moved forward. **(Include a graph)**

shape

[4]

X

?

- (b) How high is the valve stem above the ground when the wheel has rolled 60 cm?

[1]

- (c) If the wheel is moving forward at a speed of 24π cm/s then determine the sinusoidal function that describes the height of the valve stem above the ground as a function of time.

[2]

X