3U Unit # 5-Trig Test

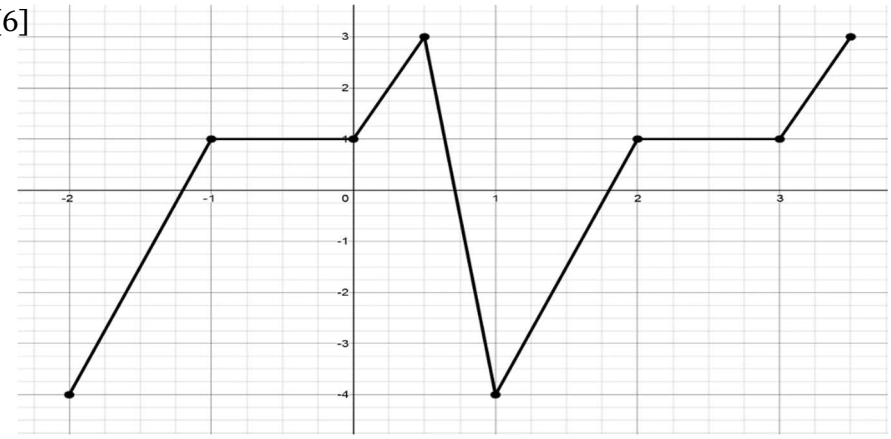
Name_____

Content	Comm	Overall
44	4	48

HMK. Completed _____ %

T2/T3 Demonstrate an understanding of period relationships and sinusoidal functions; make connections between numeric, graphical, and algebraic representations of sinusoidal functions; identify and represent sinusoidal functions; solve problems involving sinusoidal functions

1. Given the graph of y=f(x), determine: [6]



a. amplitude _____

b. period _____

c. max value _____

d. min value _____

e. f(-1) _____

f. f(49) _____

2. State each of the following: [5]

a) The period of tan x _____

b) The max of y=-3sinx-2 _____

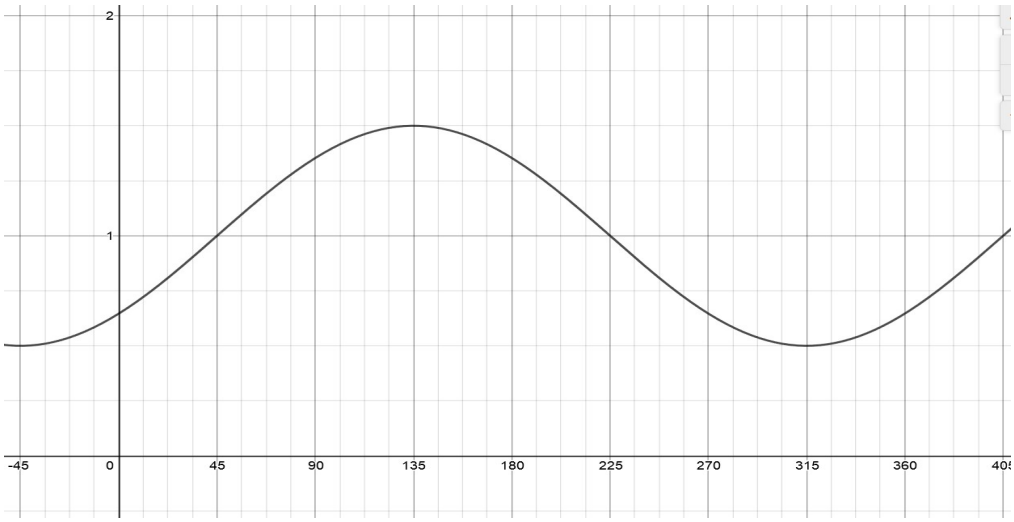
c) The y-intercept of y= -2cosx +1_____

d) The x-intercepts y=sin(0.5x) for{ $0 \le x \le 360^{o}$}

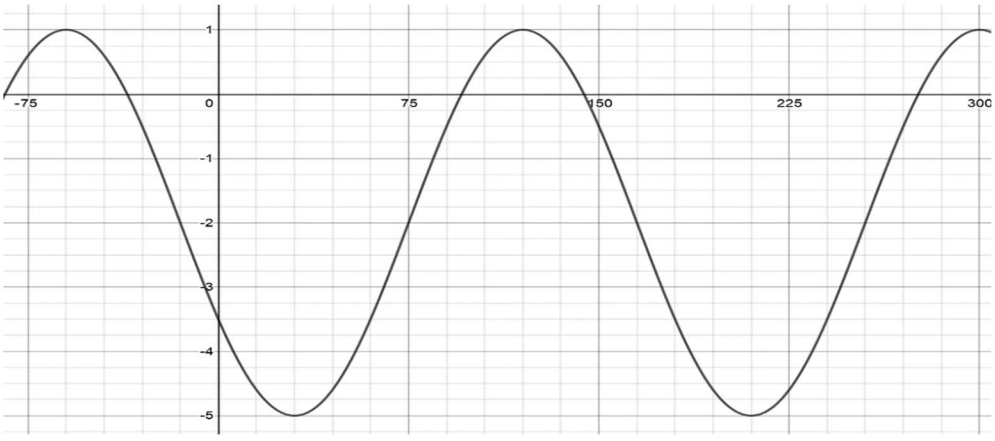
e) State an invariant point between y=cosx and y=3cosx_____ _____

3. Determine an equation IN TERMS OF BOTH SINE AND COSINE of each of the following. Show all your work. [3,3]

a)



b)



4. Write a sinusoidal function that has an amplitude of 4, a max of (0,-1) and a period of 270°.

[2]

5. Graph each of the following and state the amplitude, period, phase shift and scale needed. [4,4,4]

a) $y = -\frac{1}{3}cosx - 1$ for one cycle.

amplitude _____

period _____

phase shift _____

b) $y = 2\sin(3x - 180°) + 2$ for one cycle

amplitude _____

period _____

phase shift _____

c) $y = 3\cos[2(x - 60°)]$ for $0 \leq x \leq 360°$

amplitude _____

period _____

phase shift _____

6. A Ferris wheel has a diameter of 40 m and its centre is 21 m off the ground. The wheel rotates once every 30 s.

a) Draw a graph showing the height of a person on the Ferris wheel during the 3 min ride, starting at the lowest position.

[7]

b) Determine two equations of a sine function to model the above graph.

c) Describe what would happen to the graph and the equation if the wheel starting turner faster.

7. Sammy is floating in an inner tube in a wave pool. He is 1.5 m from the bottom of the pool when he is at the bottom of the wave. A stopwatch starts timing him at this point. In 3 seconds he is at the top of the wave that is 2.5 m from the bottom of the pool.

a) Determine a cosine and sine function that would express Sammy's distance from the bottom of the pool in terms of time in seconds. Graph can be used,if needed.

[4]

b) How far above the bottom will Sammy be in 1 min?

[1]

c) What other times will Sammy be at the 2.5 m above the bottom of the pool in the first 30 seconds?

[1]