Question 1
(-3,1) is on the terminal arm of an angle. Calculate the measure of the principal angle in radians to 2 decimal places.

Question 2
(-2,-5) is on the terminal arm of an angle. Calculate the measure of the principal angle in radians to 2 decimal places.

Question 3
(3, -5) is on the terminal arm of an angle. Calculate the measure of the principal angle in radians to 2 decimal places.

Question 4
A wheel revolves at 120 rad/min.

a) What is the angular velocity in radians per second?
b) A point is 22cm from the point of rotation. How far does it travel in 3 s?

Question 5
A car travels at 50km/hr. Determine the angular velocity (rad/s) of tires with a radius 34cm? What would the angular velocity be of a monster truck that travels at the same speed but it's tires have a diameter of 1.7m?

Question 6

a) Graph the function $y = 4\sin(2\left(x + \frac{\pi}{4}\right)) - 1$ for $0 \leq x \leq 2\pi$
b) What is the range of the function?
c) What is the amplitude? Period? Equation of the axis?

Question 7

a) Graph the function $y = -2\cos(3x) + 5$ for $0 \leq x \leq 2\pi$
b) What is the range of the function?
c) What is the amplitude? Period? Equation of the axis?

Question 8

a) Graph the function $y = -2\sin\left(x - \frac{\pi}{3}\right) + 3$ for $0 \leq x \leq 2\pi$
b) What is the range of the function?
c) What is the amplitude? Period? Equation of the axis?

Question 9

a) Graph the function $y = csc\theta$ for $0 \leq x \leq 2\pi$
b) Where is the location of the asymptotes?
c) Where is the location of the local maximums? Where is the location of the local minimums?

Question 10

a) Graph the function $y = sec\theta$ for $0 \leq x \leq 2\pi$
b) Where is the location of the asymptotes?
c) Where is the location of the local maximums? Where is the location of the local minimums?

Question 11

A ferris wheel has a radius of 8m and the lowest point on the wheel is 1m off the ground. This ferris wheel can complete one revolution in 4 minutes. Jack and Jill get on the ferris wheel at the lowest point.

a) Sketch a graph of the height of Jack and Jill above the ground versus time for 3 rotations.
b) Create a function that models this situation.

Question 12

a) Determine the exact value for $sin\frac{3\pi}{4}$.
b) Determine an equivalent expression for $sin\frac{3\pi}{4}$.

Question 13

a) Determine the exact value for $cos\frac{4\pi}{3}$.

b) Determine an equivalent expression for $cos\frac{4\pi}{3}$.

Question 14

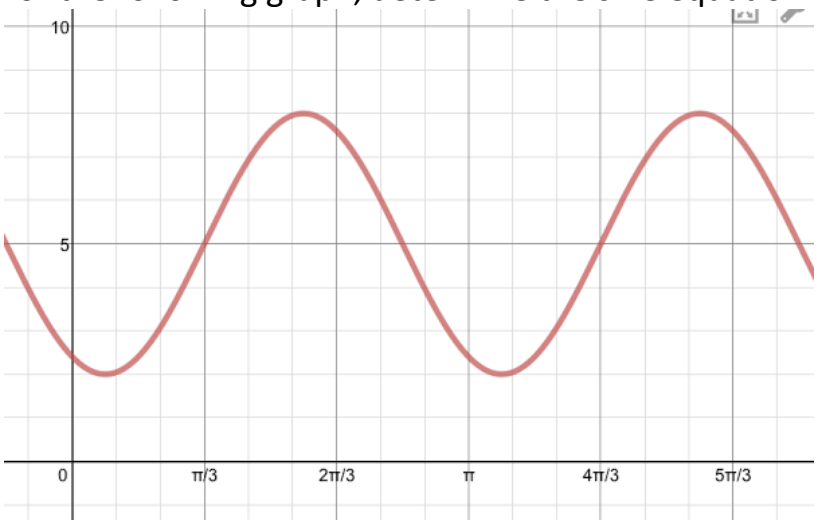
The pedals of a bicycle are mounted on a bracket whose center is 30cm above the ground. Each pedal is 16cm from the bracket. A person starts pedaling when the pedal is half way from its lowest point. This person can cycle at a constant rate of 12 cycles per minute.

a) Sketch of graph of the height of the pedal above the ground for 3 cycles.

b) Create an equation that models this situation.

Question 15

For the following graph, determine the sine equation that models the graph.



Question 16

For the following graph, determine the cosine equation that models the graph.