

Name: \_\_\_\_\_

Date: \_\_\_\_\_

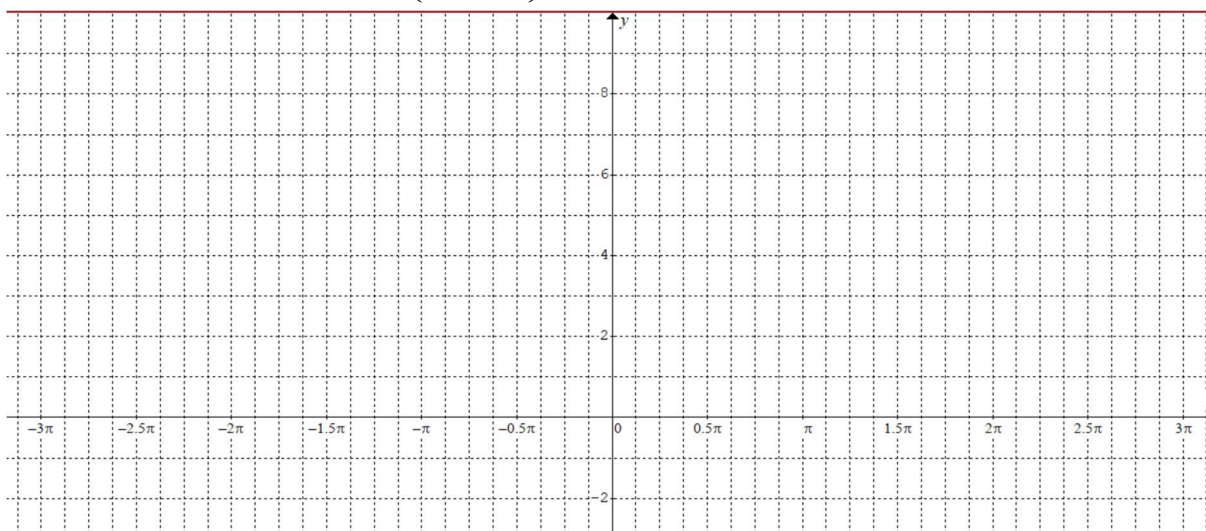
**Pre Calculus 12 Honors Ch4 Review Trigonometry**

1. Solve the following for  $0^\circ \leq \theta \leq 360^\circ$ . Show all your work and steps (5marks each)

i)  $84 \tan^2 2\theta - 73 \tan 2\theta - 45 = 0$

ii)  $20 \csc^2 3\theta + 13 \csc 3\theta - 72 = 0$

2. Graph the function :  $y = 5 \cos \frac{4}{5} \left( \frac{3\pi}{2} - 2x \right) + 3$  for  $-3\pi \leq x \leq 3\pi$ . (3marks)



a) State the amplitude, period, phase shift, and vertical displacement (4marks)

b) Indicate the coordinates of the maximum and minimum points on the graph(2marks)

c) Find the X-intercepts for  $-3\pi \leq x \leq 3\pi$  (2marks)

3. A vehicle with a large wheel [diameter of 4.5meters] travelled 25km. What is the angular rotation of the wheel?

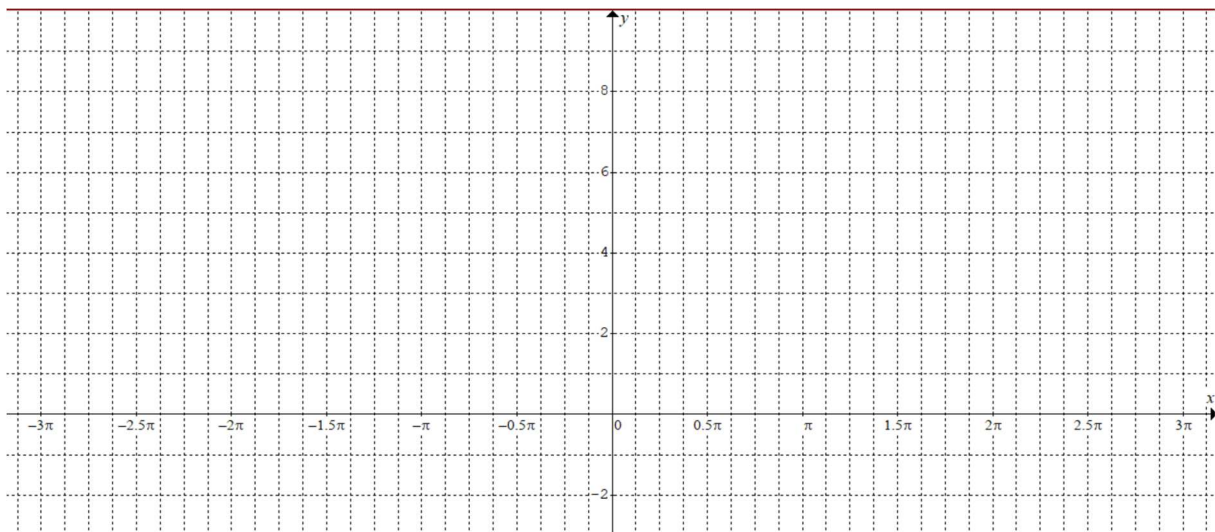
4. Passengers board the lowest point of a Ferris wheel on a platform 7 meters above the ground. The highest point on the Ferris wheel is 75meters above ground. The wheel rotates once every 14min.. Suppose you get on the bottom at  $t=0$ . Write a cosine equation and sine equation that expresses the height of a passenger as a function of time ("t" minutes after getting on). Indicate the amplitude, phase shift, vertical displacement, and period for each function. Show all your steps.

a) Cosine Function:\_\_\_\_\_ (2marks)

b) Sine Function:\_\_\_\_\_ (2marks)

- c) Within the first 30min, at what times, “t” minutes, will a passenger on the Ferris be at least 65metres above ground? Show all your work and steps (4marks)

5. Graph the function:  $y = 4 \tan \frac{4}{3} \left( \frac{\pi}{3} - \frac{x}{2} \right) + 2$  and then get the coordinates of x-intercepts:



- a) Find the equation of the vertical asymptotes, provide a general formula

- b) Find the “x” intercepts of the graph, provide a general formula

6.  $\sin \theta + \frac{\sin^2 \theta}{\cos \theta} + \frac{\sin^3 \theta}{\cos^2 \theta} + \frac{\sin^4 \theta}{\cos^3 \theta} + \dots = \cos \theta$ . Solve for  $\theta$

7. Solve for "x",  $0 \leq x \leq 2\pi$ :  $\sin x + 2 \cos x + 3 \tan x = 0$

8. Graph  $y = 4 \cos \theta - 3 \sin \theta$  without using a graphing calculator

- Indicate the amplitude, period, and phase shift
- Write the equation as a single cosine function
- Write the equation as a single sine function

