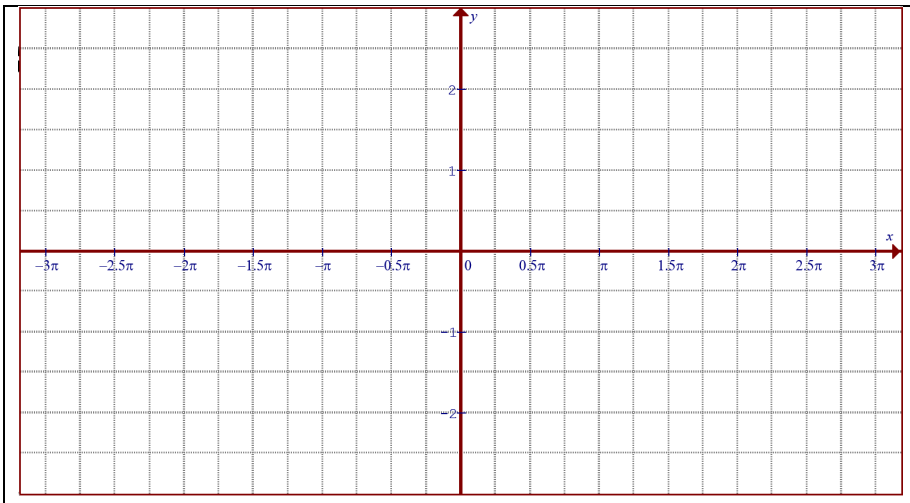
Name:_____ Date:_____

Section 3.a Graphing Sine Cosine and Tangent Functions

1. Graph the sine function on the graph provided: $y = \sin\theta$

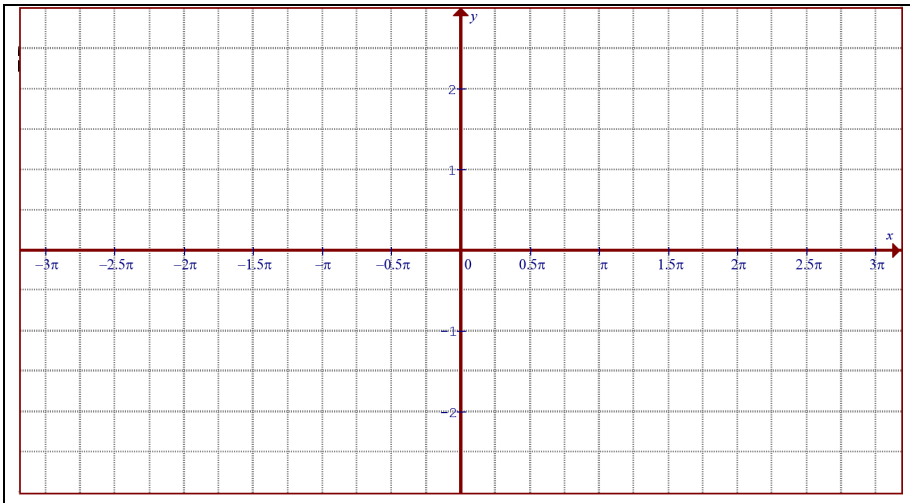


i) Find a general formula for all the x-intercepts

ii) Find a general formula for all the maximum points

iii) Find a general formula for all the minimum points

2. Graph the cosine function on the graph provided $y = \cos\theta$

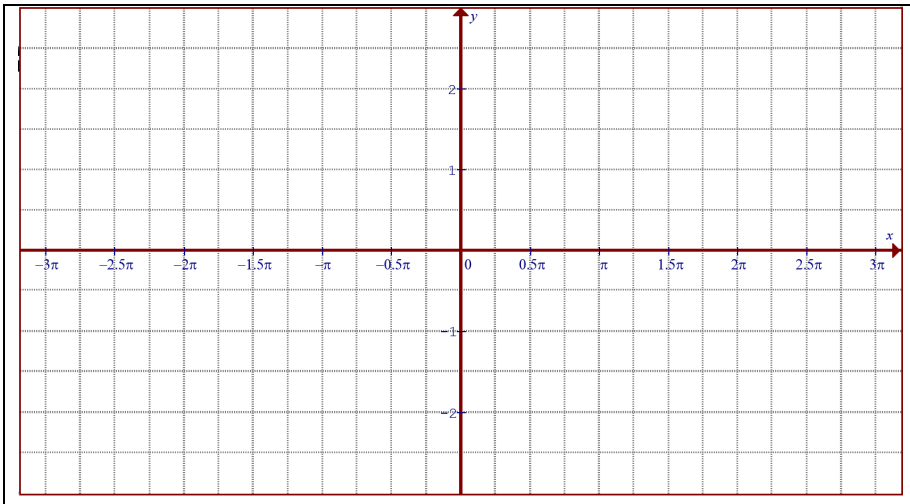


i) Find a general formula for all the x-intercepts

ii) Find a general formula for all the maximum points

iii) Find a general formula for all the minmum points

3. Graph the tangent function on the graph provided $y = \tan\theta$



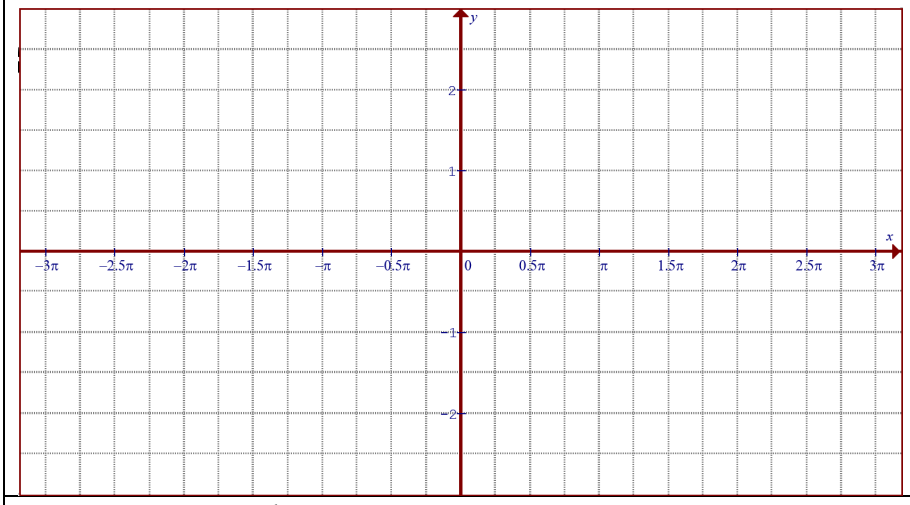
i) Find a general formula for all the x-intercepts

ii) Find a general formula for all the asymptotes

iii) Find a general formula for all the minmum points

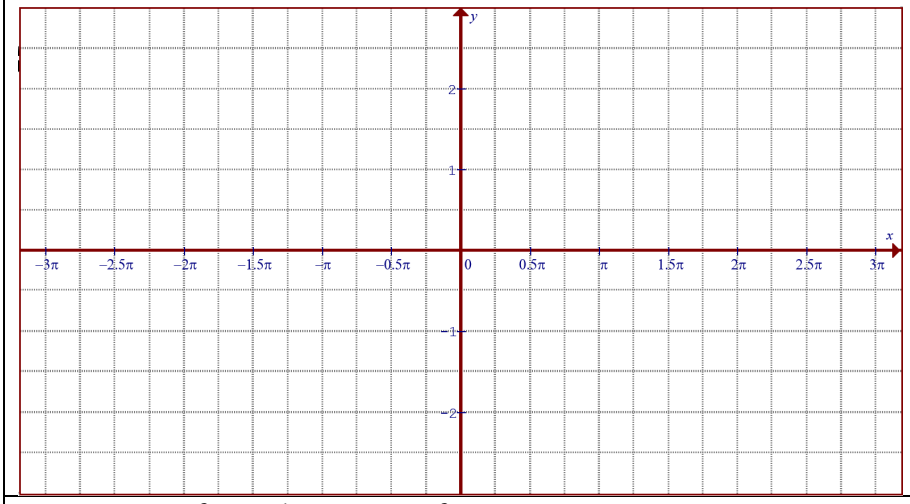
4. Solving a system means finding the intersection point between two functions. Solve the following systems by graphing.

i) $y = \cos\theta$ and $y = \sin\theta$



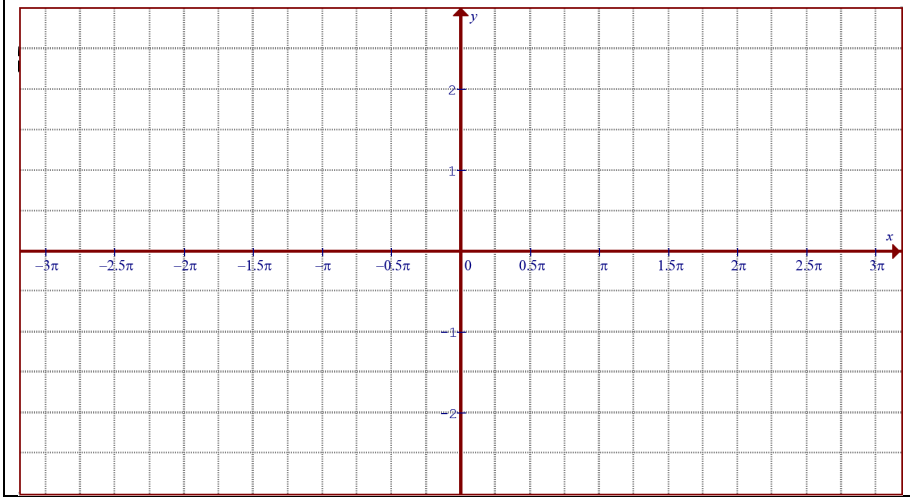
Find a general formula for all the intersection points of the two graphs

ii) $y = \tan x$ and $y = x$



Find the coordinates of the intersection points from -3π *to* 3π

iii) $y = \cos\theta$ and $y = \tan\theta$



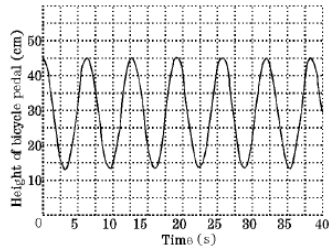
Find the general formula for all the intersection points

5. Given that $\sin\theta > 0$ and $\cos\theta < 0$, what is the range of possible values of θ if $0 < \theta < 2\pi$?

6. Indicate TRUE or FALSE: $\sin\theta > 0$ and $\cos\theta > 0$, then $\tan\theta$ can be either positive or negative.

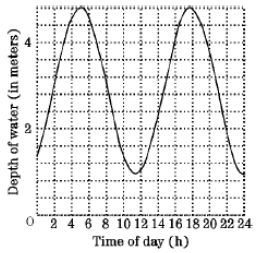
7. Given each of the following trigonometric graphs, indicate the amplitude and period

a)



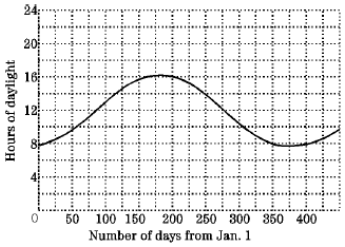
Period= Amplitude=

b)



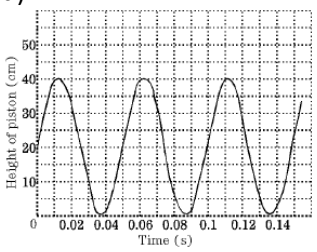
Period= Amplitude=

c)



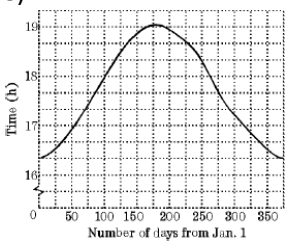
Period= Amplitude=

d)



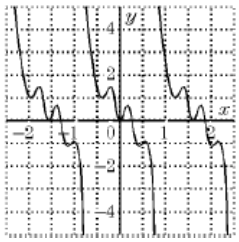
Period= Amplitude=

e)



Period= Amplitude=

f)



Period= Amplitude=

8. How many units should the graph of $y = \sin x$ be shifted horizontally so that it will overlap the graph of $y = \cos x$?

9. Given the function $f(x) = \sin\theta\cos\theta$, what is the amplitude of the function?

10. If $\cos\theta = \dfrac{a^2 - b^2}{a^2 + b^2}$ and $0° \le \theta \le 90°$, find the value of $\sin\theta$:

a) $\dfrac{2ab}{a^2 + b^2}$ b) $\dfrac{4ab}{a^2 + b^2}$ c) $\dfrac{2a^2b^2}{a^2 + b^2}$ d) $\dfrac{4a^2b^2}{a^2 + b^2}$ e) $\dfrac{a^2b^2}{2a^2 + 2b^2}$

11. If $0° \le \theta \le 180°$ and $\sin\theta \ge \cos\theta$, then:

a) $0 \le \theta \le 45°$ b) $45° \le \theta \le 90°$ c) $45° \le \theta \le 180°$ d) $90° \le \theta \le 180°$ e) $0 \le \theta \le 90°$

12. $\cos(270° - \theta) =$

a) $-\cos\theta$ b) $\cos\theta$ c) $-\sin\theta$ d) $\sin\theta$ e) $\sin\theta\cos\theta$

13. If $\sin 2a < 0$, $\cos a - \sin a < 0$, which quadrant is angle a in?

a) I b) II c) III d) IV

14. A circle of radius 1 is centered at the origin. Two particles start moving at the same time from the point (1,0) and move around the circle in opposite directions. One of the particles moves counterclockwise with constant speed "v" and the other move clockwise with constant speed 3v. After leaving (1,0), the two particles meet first at point P, and continue until they meet at point Q. Determine the coordinates of the point "Q"