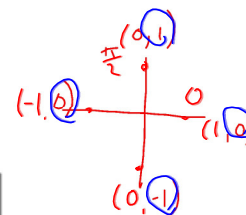
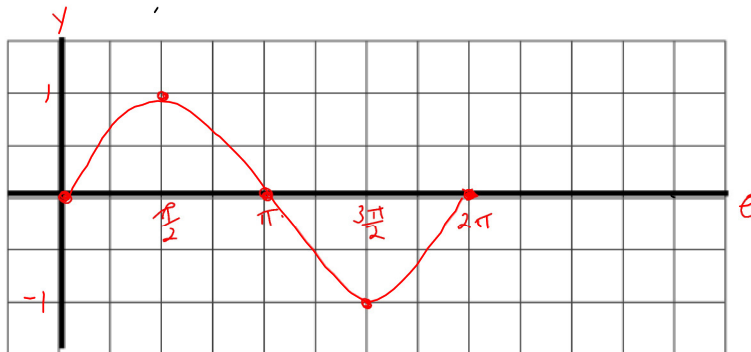


Graphing Trigonometric Functions

1) Graph $y = \sin \theta$ for $0 \leq \theta \leq 2\pi$

θ	y
0	0
$\frac{\pi}{2}$	1
π	0
$\frac{3\pi}{2}$	-1
2π	0



Determine the following for all values of $y = \sin \theta$:

a) Domain

$(-\infty, \infty)$ or $\theta \in \mathbb{R}$

b) Range

$[-1, 1]$

c) ~~x~~-intercept(s)

$k\pi, k \in \mathbb{Z}$

d) y-intercept(s)

0

e) Amplitude

$\frac{1}{2}$ the distance between the max and min

1

$$A = \frac{\max - \min}{2}$$

f) Period

time it takes to repeat the cycle

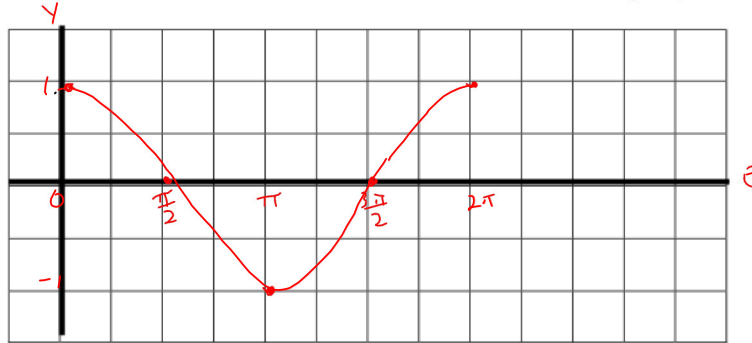
2π

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2) Graph $y = \cos \theta$ for $0 \leq \theta \leq 2\pi$

Sinusoidal wave

θ	y
0	1
$\frac{\pi}{2}$	0
π	-1
$\frac{3\pi}{2}$	0
2π	1



Determine the following for all values of $y = \cos \theta$:

a) Domain

$$(-\infty, \infty)$$

b) Range

$$[-1, 1]$$

c) θ -intercept(s)

$\frac{\pi}{2}, \frac{3\pi}{2}, \frac{5\pi}{2} \dots$ odd multiples of $\frac{\pi}{2}$

$$\frac{\pi}{2} + k\pi, k \in \mathbb{Z}$$

$$\text{or } (2k+1)\frac{\pi}{2}, k \in \mathbb{Z}$$

d) y -intercept(s)

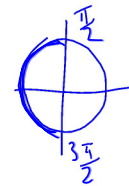
$$1$$

e) Amplitude

$$1$$

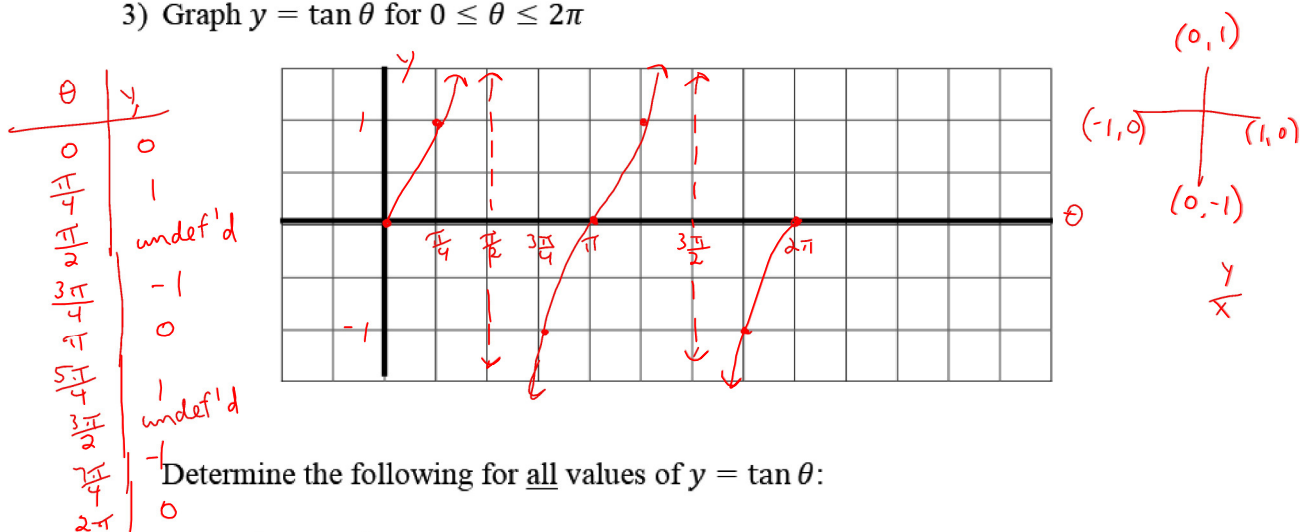
f) Period

$$2\pi$$



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3) Graph $y = \tan \theta$ for $0 \leq \theta \leq 2\pi$



Determine the following for all values of $y = \tan \theta$:

a) Domain

$$\theta \neq \frac{\pi}{2} + k\pi, k \in \mathbb{Z}$$

b) Range

$$(-\infty, \infty)$$

c) Asymptotes (equations)

$$\theta = \frac{\pi}{2} + k\pi, k \in \mathbb{Z}$$

d) ~~x~~-intercept(s)

$$k\pi, k \in \mathbb{Z}$$

e) y-intercept(s)

$$0$$

f) Period

$$\pi$$