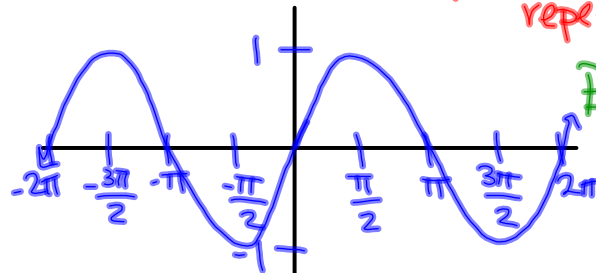


### 13.5 Graphing Trig. Functions.

Obj: 1. Graph sine, cosine, & tangent & their transformations.

$$y = \sin x$$



periodic: the pattern repeats

period: how long it takes for the pattern to repeat.

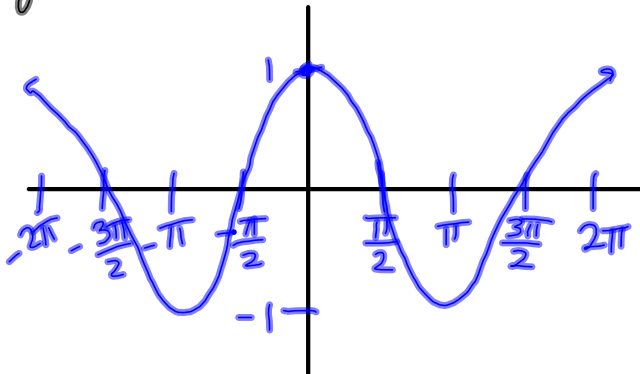
$$D: (-\infty, \infty)$$

$$R: [-1, 1]$$

$$\text{per: } 2\pi$$

Mar 21-11:00 AM

$$y = \cos x$$

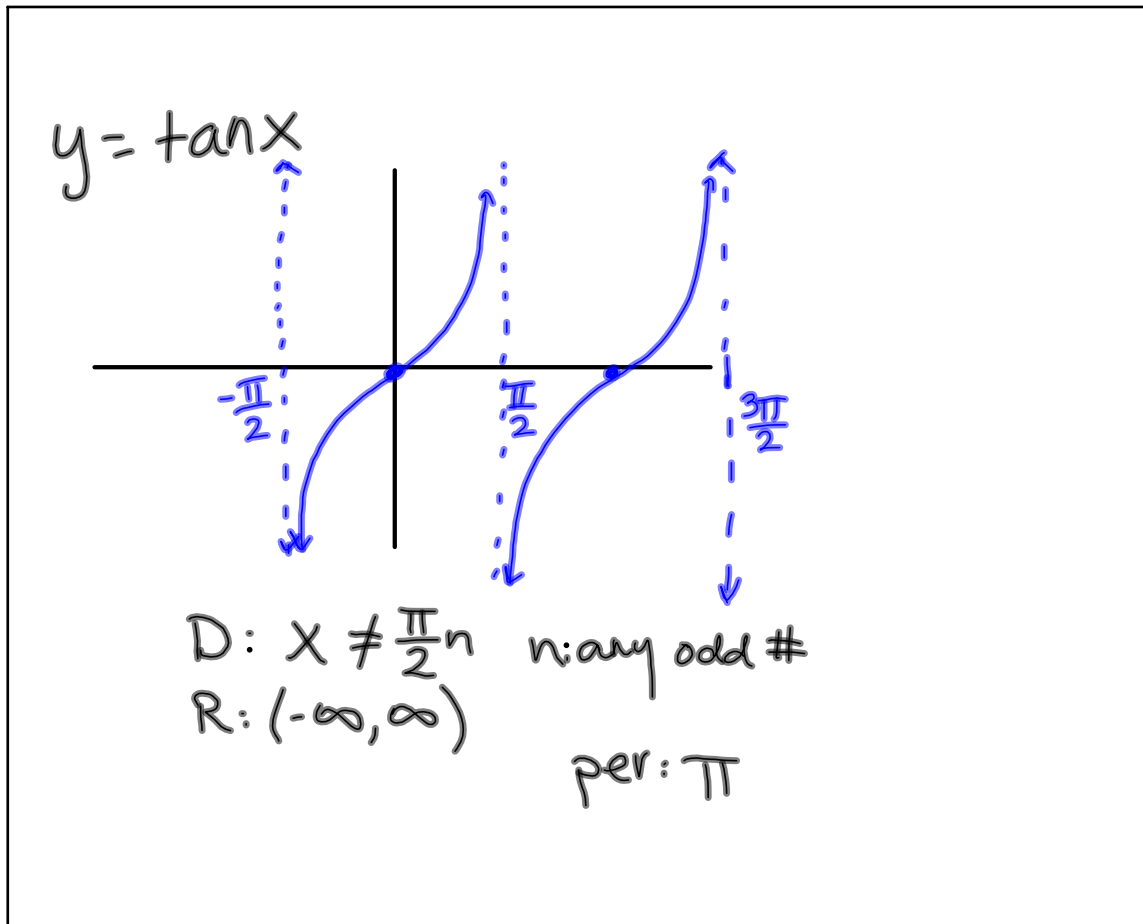


$$D: (-\infty, \infty)$$

$$R: [-1, 1]$$

$$\text{per: } 2\pi$$

Mar 21-11:28 AM



Mar 21-11:32 AM

### Standard Form

$$y = a \cdot \sin[b(x-c)] + d$$

a: vertical stretch/comp.

\* amplitude: always positive:  $|a|$

b: horiz. stretch/comp

\* periodic finder: per:  $\frac{2\pi}{|b|}$

c: horiz. trans.  
\* phase shift

d: vertical shift

Mar 21-11:37 AM

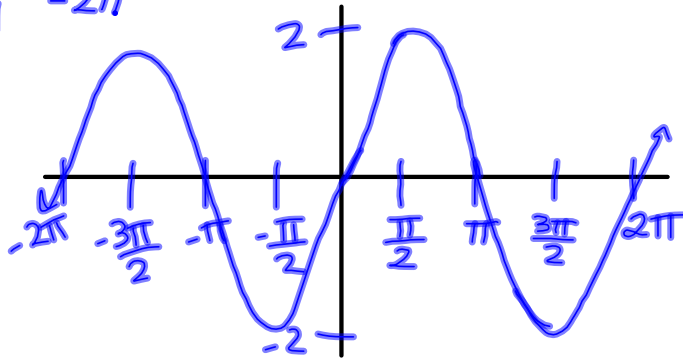
$$y = 2 \sin \theta$$

$$a: 2$$

$$b: 1 \quad \text{per: } \frac{2\pi}{1} = 2\pi$$

$$c: \emptyset$$

$$d: \emptyset$$



Mar 21-11:42 AM

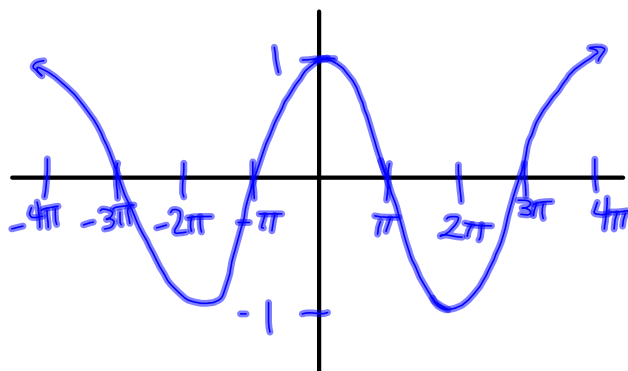
$$y = \cos \frac{1}{2} \theta$$

$$a: 1$$

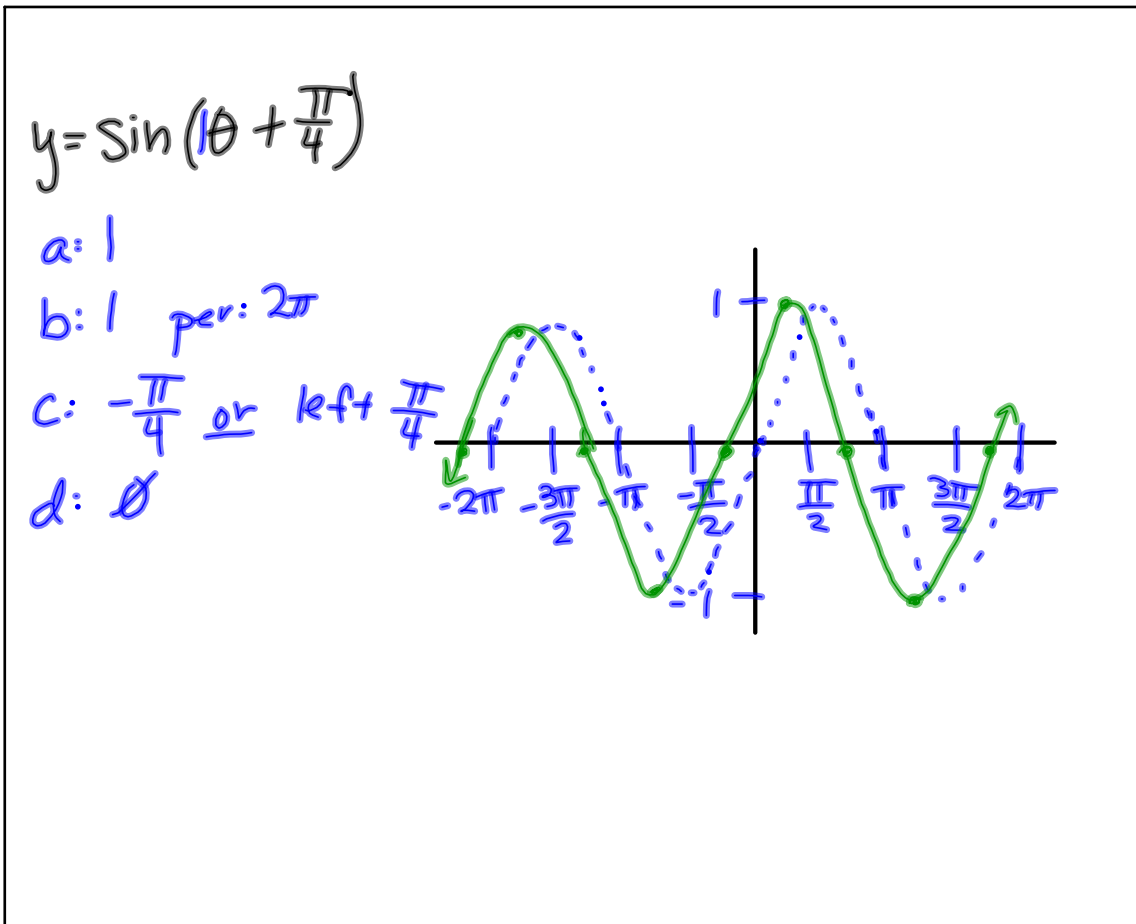
$$b: \frac{1}{2} \quad \text{per } \frac{2\pi}{\frac{1}{2}} = 2\pi \cdot \frac{2}{1} = 4\pi$$

$$c: \emptyset$$

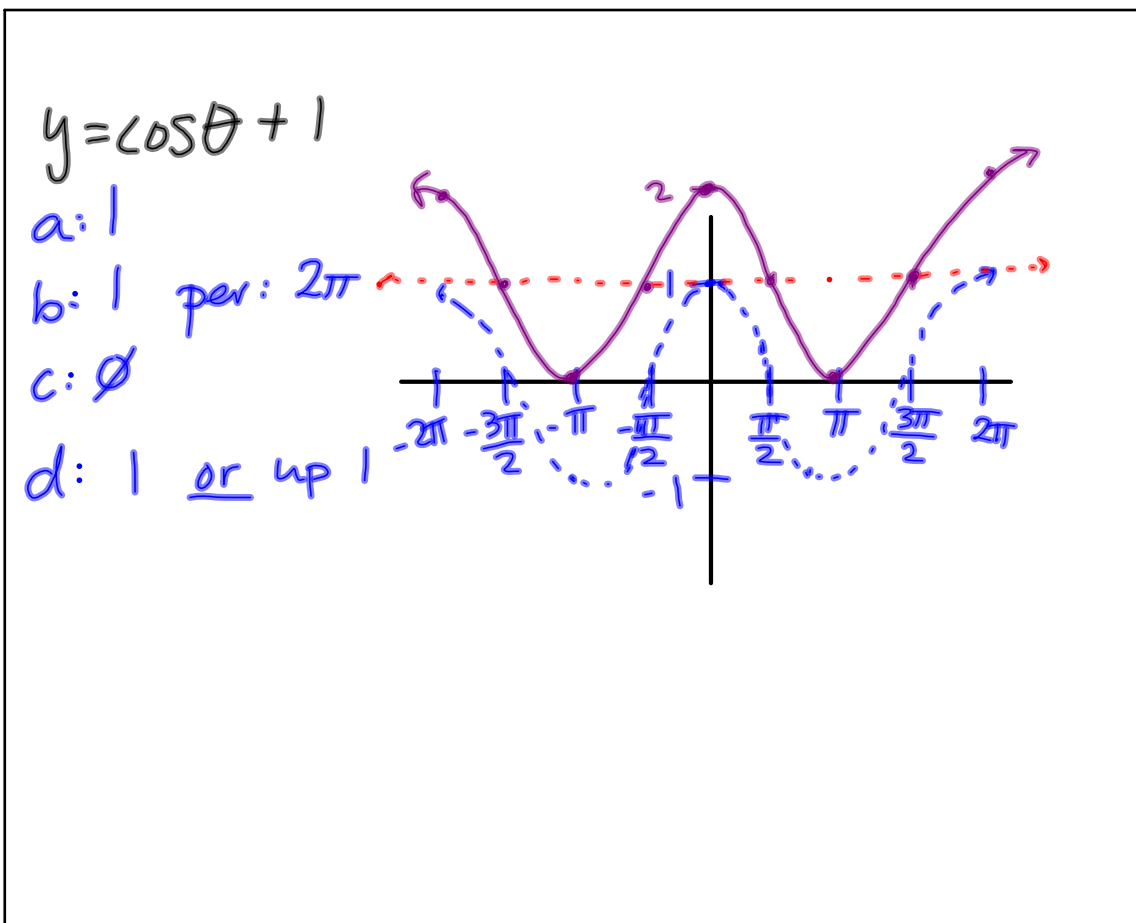
$$d: \emptyset$$



Mar 21-11:46 AM



Mar 21-11:49 AM



Mar 21-11:53 AM

$$y = 3 \tan \frac{\theta}{2}$$

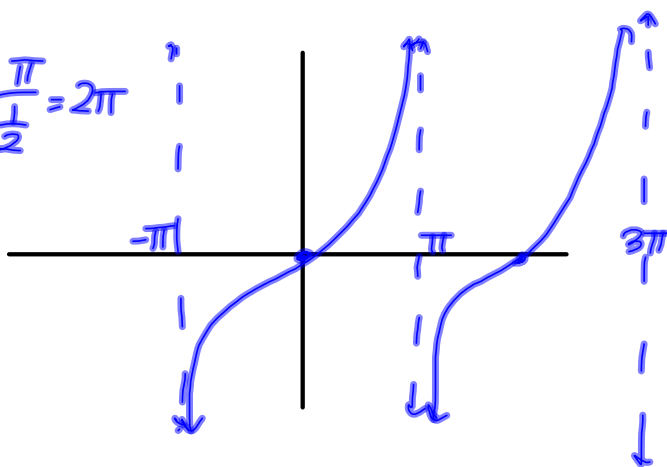
a: 3

b:  $\frac{1}{2}$

c:  $\emptyset$

d:  $\emptyset$

per:  $\frac{\pi}{b} = \frac{\pi}{\frac{1}{2}} = 2\pi$



Mar 21-11:57 AM