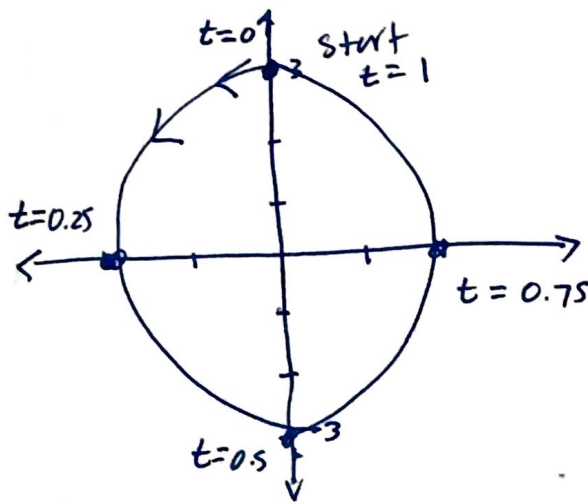


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Ellipse $\frac{x^2}{4} + \frac{y^2}{9} = 1$

40. Begins at (0,3)
counterclockwise
1 second for a complete revolution



1 second to make 1 revolution.

Two implications:

The object travels to each axis in $\frac{1}{4}$ of a second

Also

$$\frac{1 \text{ rev}}{1 \text{ sec}} \cdot \frac{2\pi \text{ radians}}{1 \text{ rev}} =$$

$$2\pi \text{ radians/sec}$$

Thus the 1

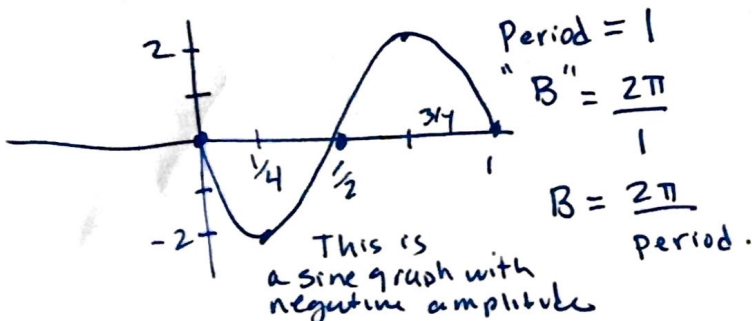
t	x	y
0	0	3
$\frac{1}{4}$	-2	0
$\frac{1}{2}$	0	-3
$\frac{3}{4}$	2	0
1	0	3

Answer

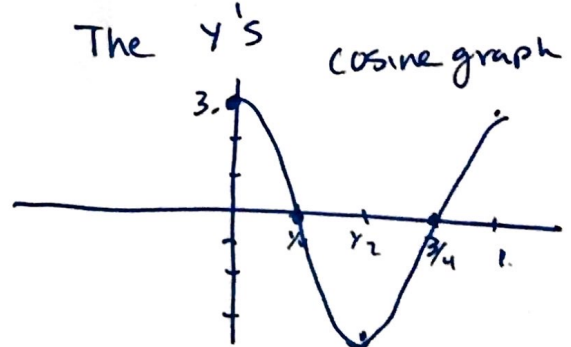
$$x = -2 \sin(2\pi t)$$

$$y = 3 \cos(2\pi t) \quad 0 \leq t \leq 1$$

The x's



The y's



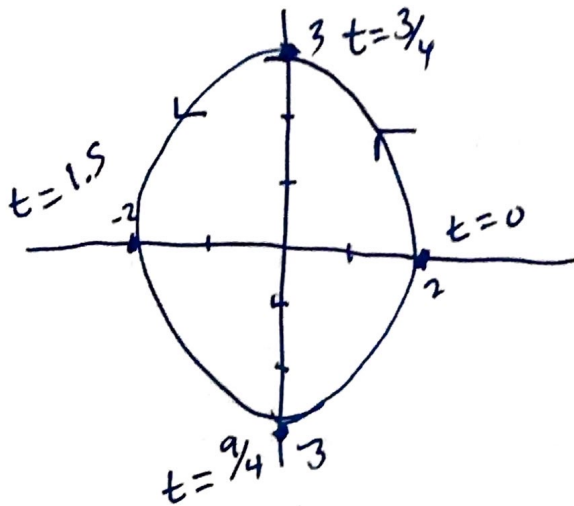
#42.

Begins at (2, 0)

CounterClockwise

3 seconds for one revolution

$$\frac{x^2}{4} + \frac{y^2}{9} = 1$$

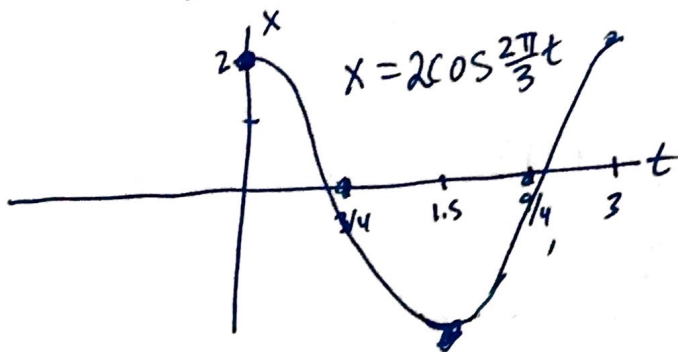


$$\frac{3 \text{ seconds}}{4} = \frac{3}{4}$$

t	X	Y
0	2	0
3/4	0	3
9/4 = 1.5	-2	0
9/4	0	-3
3	2	0

⊗

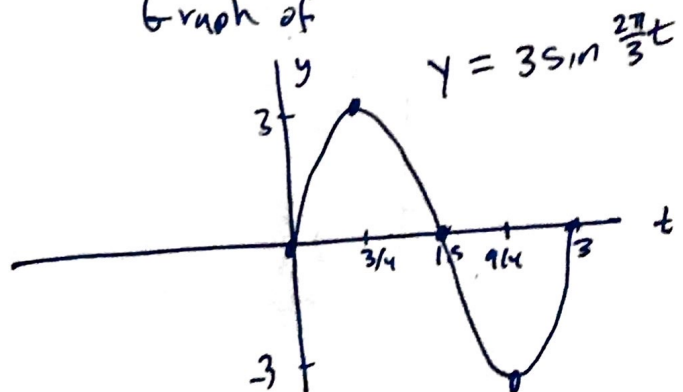
Graph of x versus t



Period is 3 seconds

$$\beta = \frac{2\pi}{3}$$

Graph of



$$\begin{aligned} X &= 2 \cos \frac{2\pi}{3} t \\ Y &= 3 \sin \frac{2\pi}{3} t \end{aligned} \quad 0 \leq t \leq 3$$