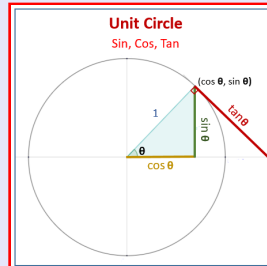
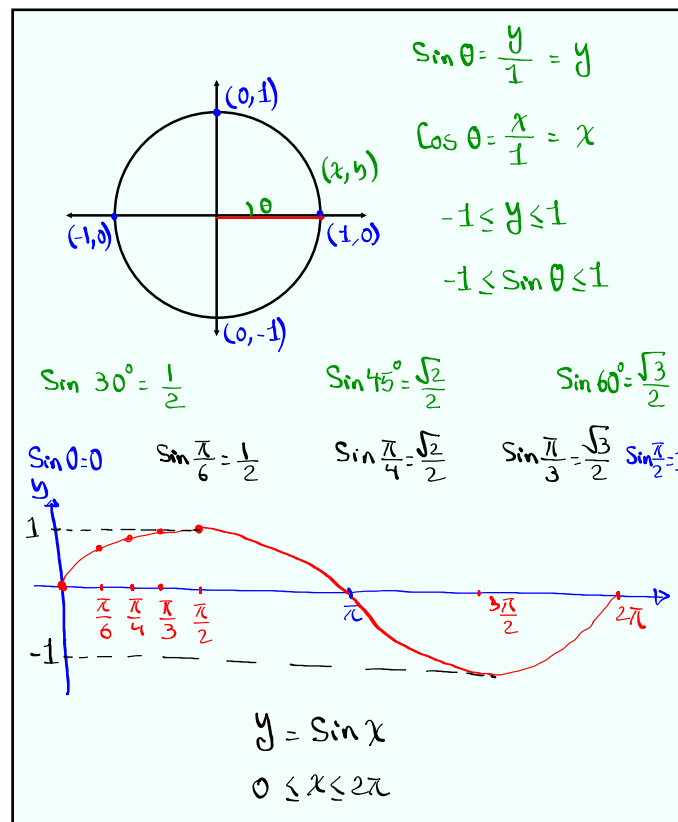


Trigonometry

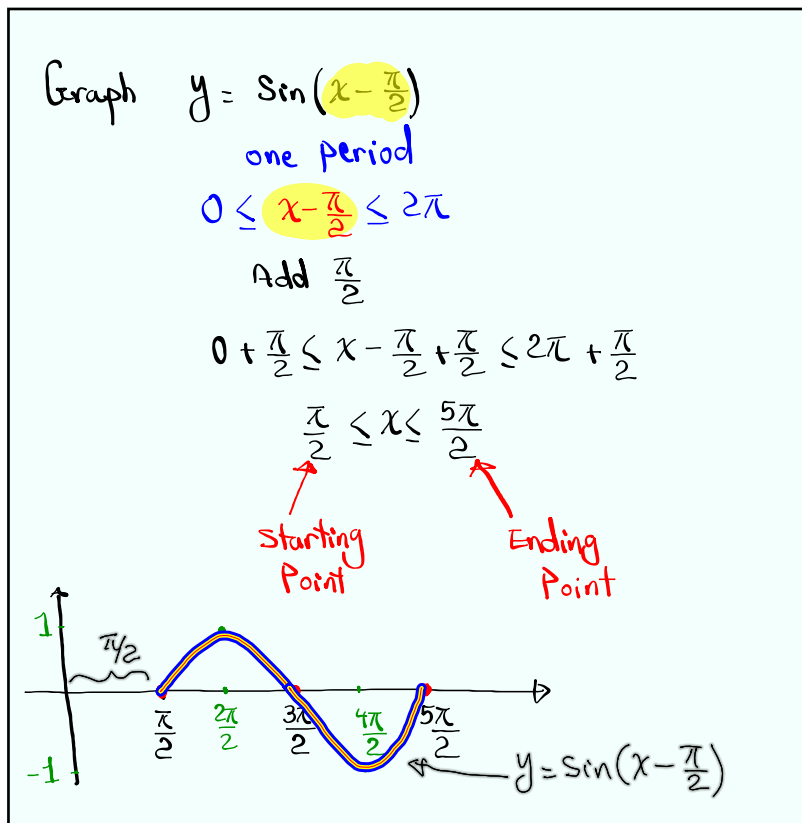
Lecture 30



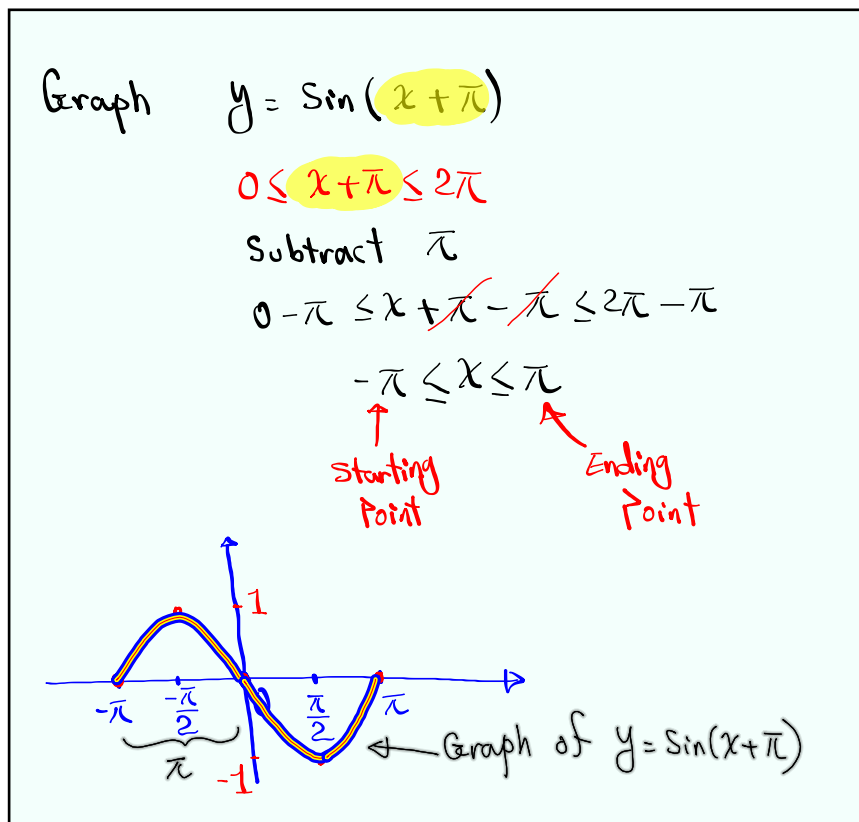
Feb 19-8:47 AM



Oct 21-10:29 AM



Oct 21-10:37 AM



Oct 21-10:42 AM

Graph $y = \sin\left(\frac{1}{2}x\right)$

$$0 \leq \frac{1}{2}x \leq 2\pi$$

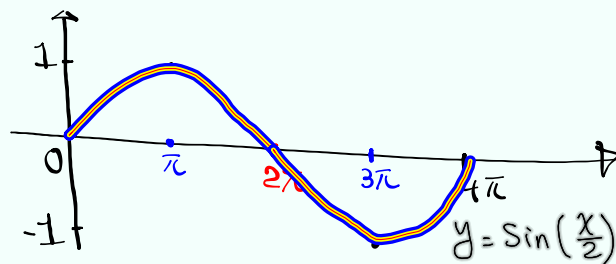
multiply by 2

$$2 \cdot 0 \leq 2 \cdot \frac{1}{2}x \leq 2 \cdot 2\pi$$

$$0 \leq x \leq 4\pi$$

↑
S.P.

↑
E.P.



Oct 21-10:48 AM

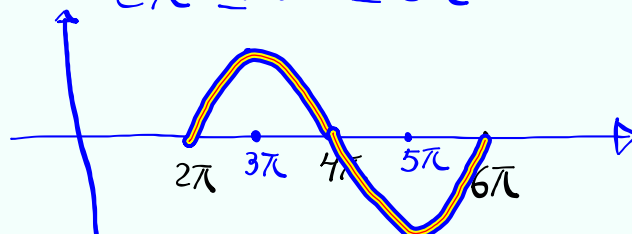
Graph $y = \sin\left(\frac{x}{2} - \pi\right)$

$$0 \leq \frac{x}{2} - \pi \leq 2\pi$$

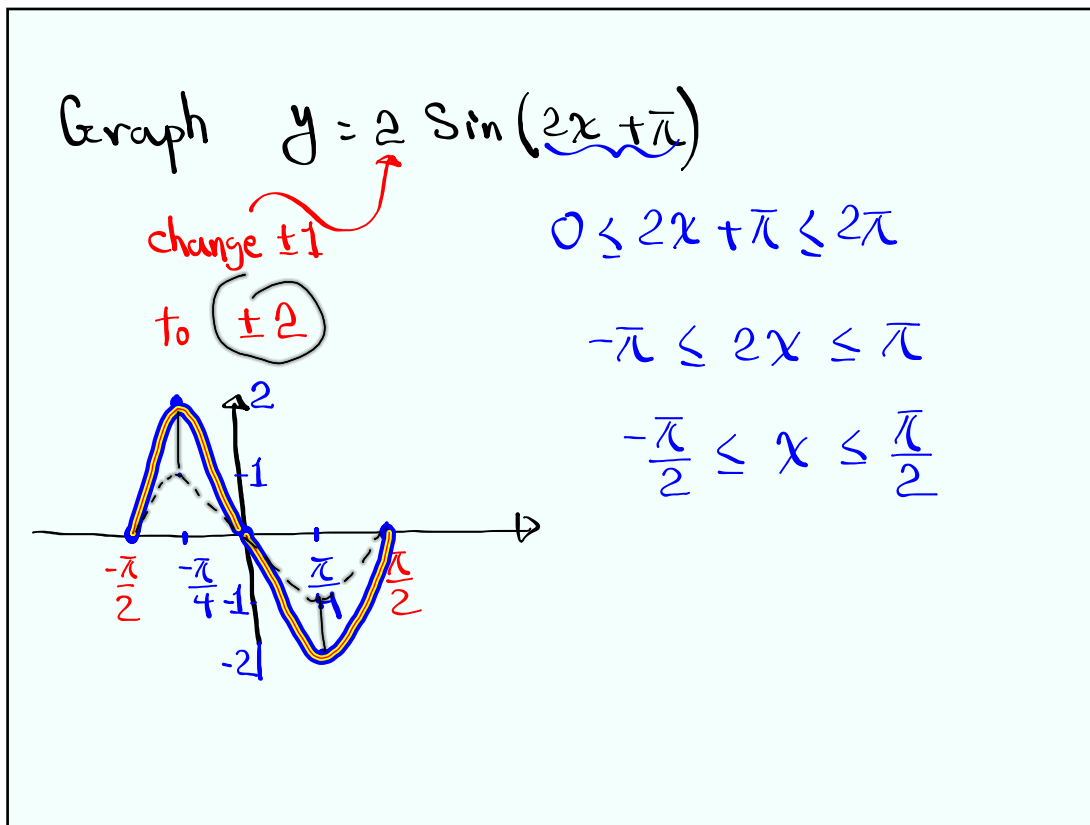
Add π , then multiply by 2

$$\pi \leq \frac{x}{2} \leq 3\pi$$

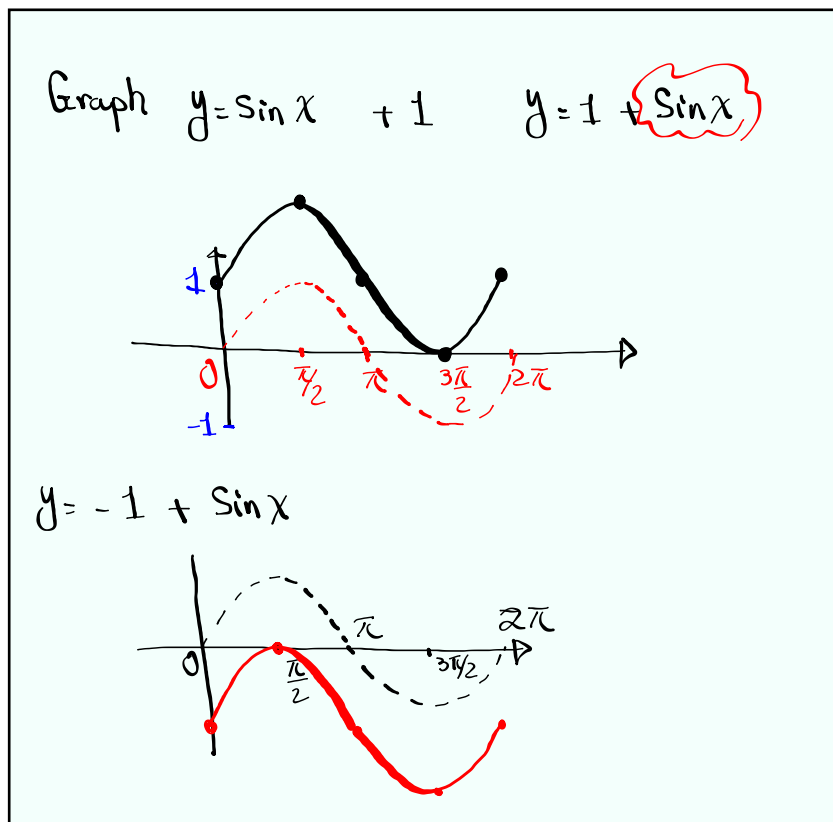
$$2\pi \leq x \leq 6\pi$$



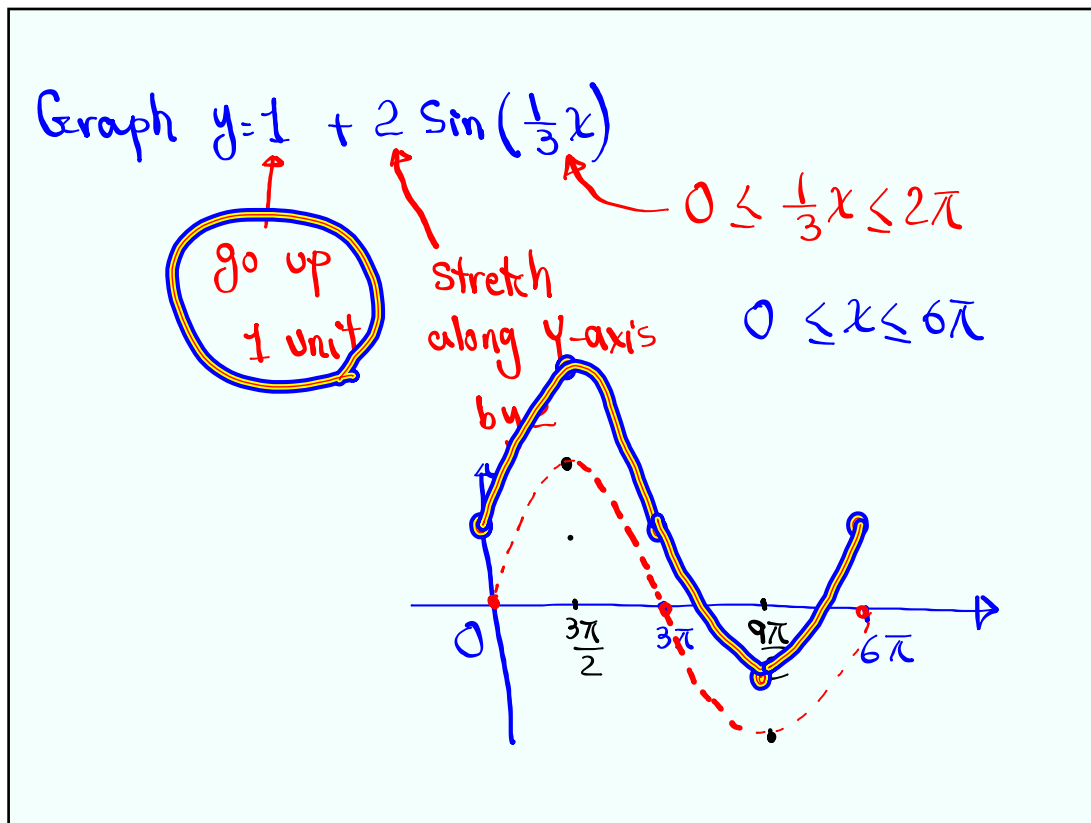
Oct 21-10:52 AM



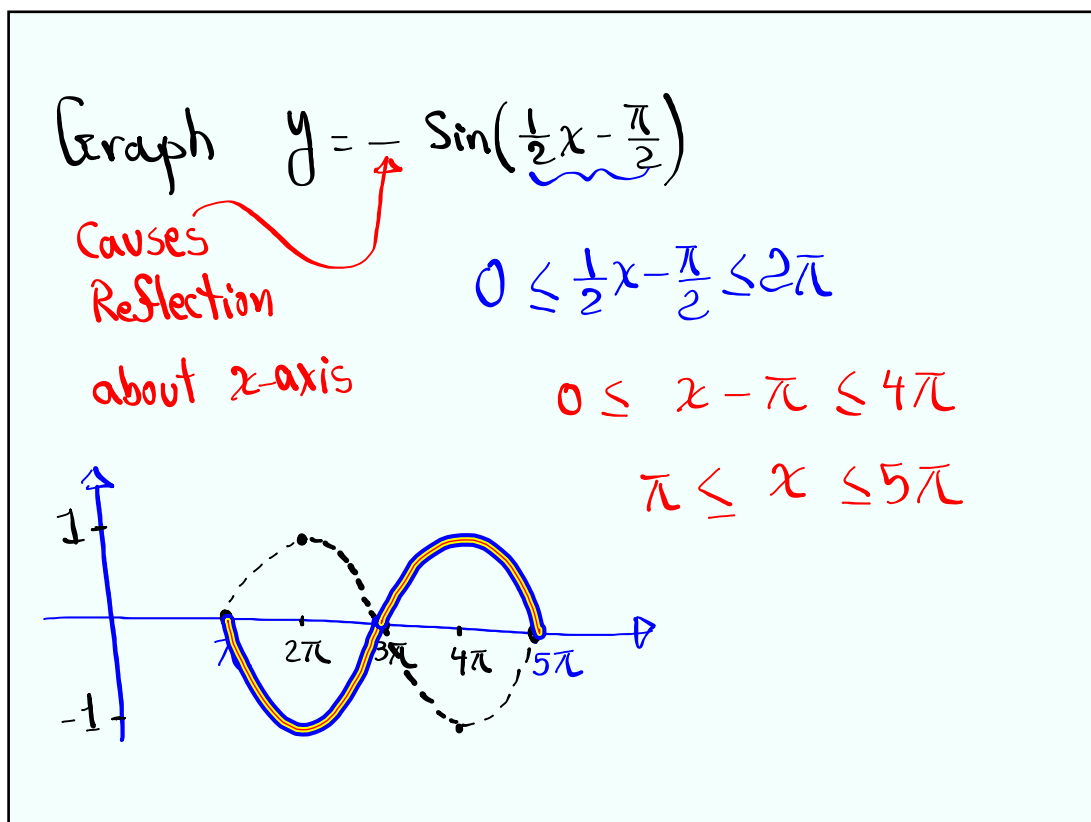
Oct 21-10:56 AM



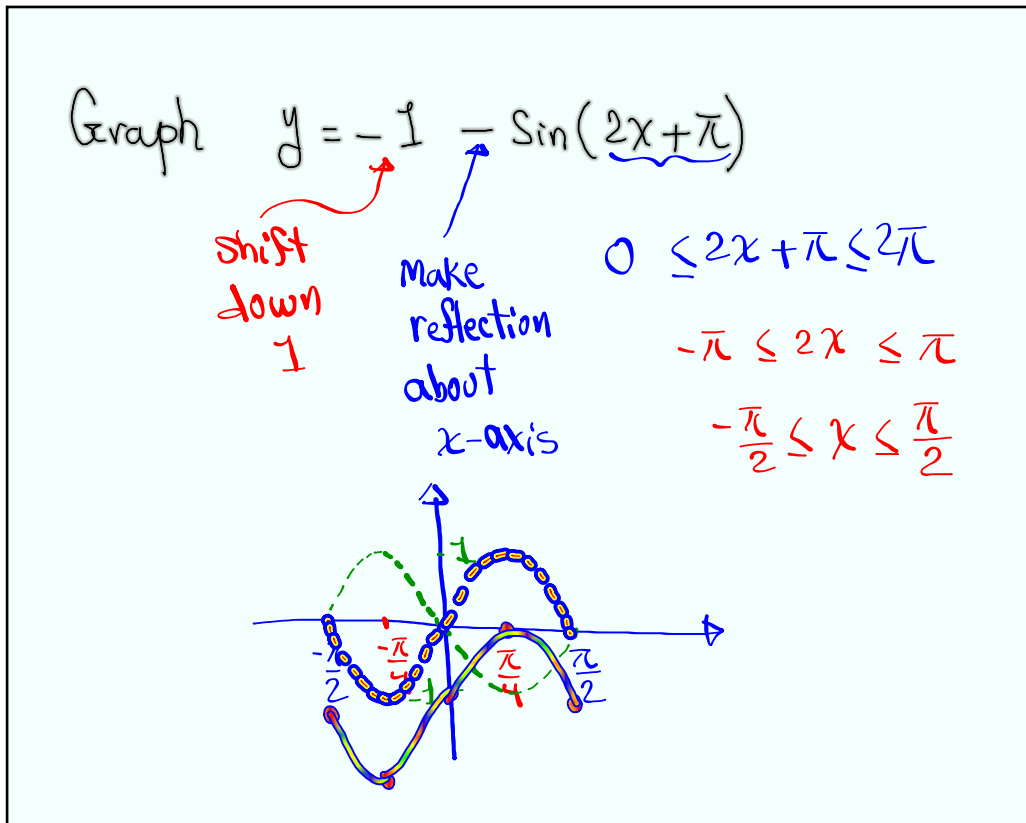
Oct 21-11:01 AM



Oct 21-11:06 AM



Oct 21-11:12 AM



Oct 21-11:17 AM

Jose had a string of 2 ft , and it is attached to a stone.

He rotates $15 \cdot 2\pi = 30\pi \text{ Rad.}$ in 20 Seconds.

1) Find angular speed rad/min.

$$\omega = \frac{\theta}{t} = \frac{30\pi \text{ Rad.}}{20 \text{ Seconds}} \cdot \frac{60 \text{ Seconds}}{1 \text{ Min}} = 90\pi \text{ Rad/min.}$$

2) Find Linear Speed for the stone.

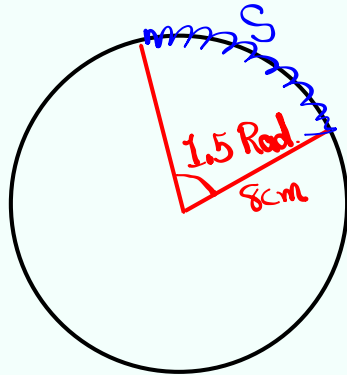
$$v = r\omega$$

$$= 2 \cdot 90\pi \text{ ft/min}$$

$$= 180\pi \text{ ft/min.}$$

Oct 21-11:23 AM

Use the drawing below



find
1) arc length

$$S = r\theta$$

$$= 8(1.5)$$

$$= \boxed{12 \text{ cm}}$$

2) area of Sector

$$A = \frac{1}{2} r^2 \theta$$

$$= \frac{1}{2} \cdot 8^2 \cdot (1.5)$$

$$= \boxed{48 \text{ cm}^2}$$

Oct 21-11:29 AM

$\sin A = \frac{3}{5}$ $90^\circ < A < 180^\circ$

$\cos B = \frac{-5}{13}$ $180^\circ < B < 270^\circ$

$\sin 2A = 2 \sin A \cos A$

$= 2 \cdot \frac{3}{5} \cdot \frac{-4}{5} = \frac{-24}{25}$

$\cos \frac{B}{2} = \pm \sqrt{\frac{1 + \cos B}{2}}$

$= -\sqrt{\frac{1 + \frac{-5}{13}}{2}} = -\sqrt{\frac{13-5}{26}}$

$= -\sqrt{\frac{8}{26}} = -\sqrt{\frac{4}{13}}$

$\tan(A-B) = \frac{\tan A - \tan B}{1 + \tan A \tan B}$

$= \frac{\frac{-3}{4} - \frac{12}{5}}{1 + \frac{-3}{4} \cdot \frac{12}{5}} = \frac{-15-48}{20-36}$

$\text{LCD} = 20 = \frac{-63}{-16} = \boxed{\frac{63}{16}}$

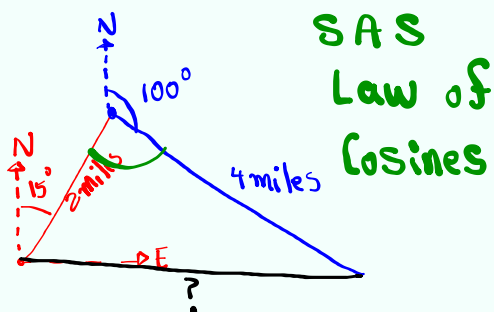
$180^\circ < B < 270^\circ$
 $90^\circ < \frac{B}{2} < 135^\circ$
 Q II

Oct 21-11:33 AM

I walked 2 miles using a bearing of
 $N 15^\circ E$.

At that time, I went 4 miles at 100°
bearing.

How far am I from the starting point?



Oct 21-11:42 AM