

## Precalculus

### The equation $\sin \theta = a$ , general

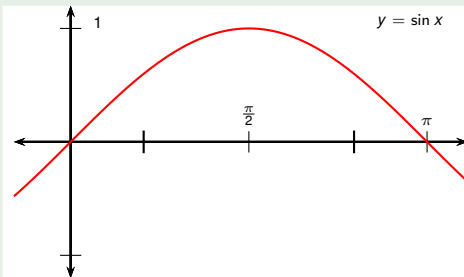
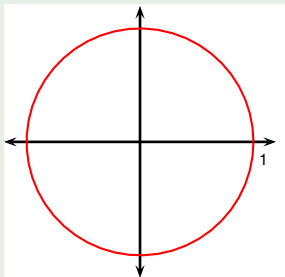
Todor Milev

2019

## Example

Find all solutions of the equation.

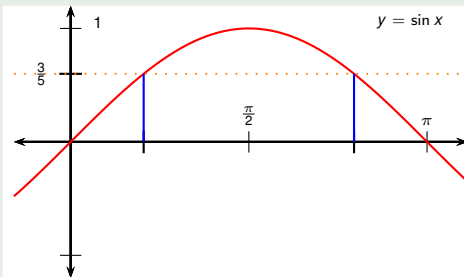
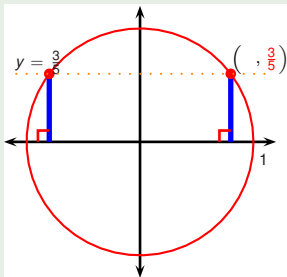
$$\sin \theta = \frac{3}{5}$$



## Example

Find all solutions of the equation.

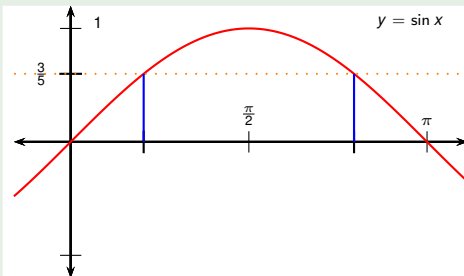
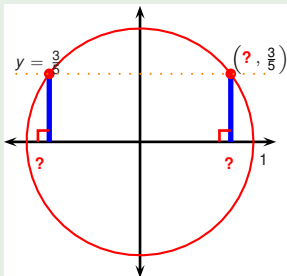
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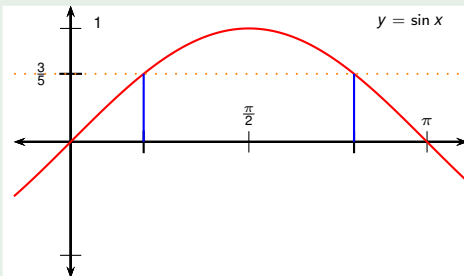
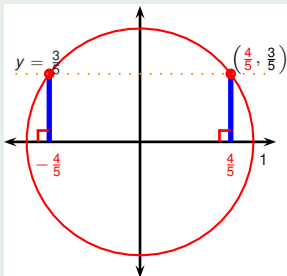
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$$\sin \theta = \frac{3}{5}$$

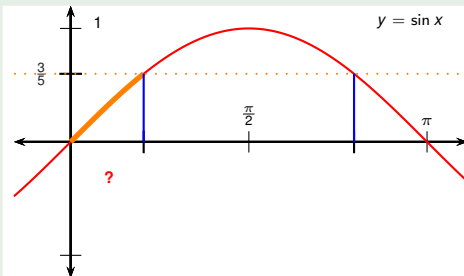
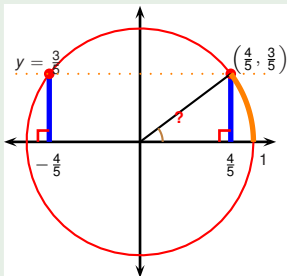


## Example

Find all solutions of the equation.

$$\sin \theta = \frac{3}{5}$$

$$\theta = ?$$



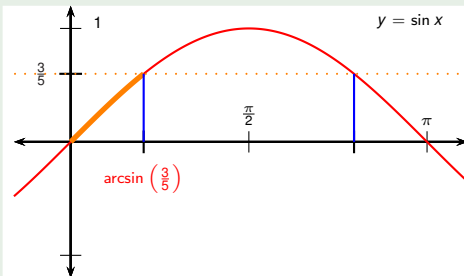
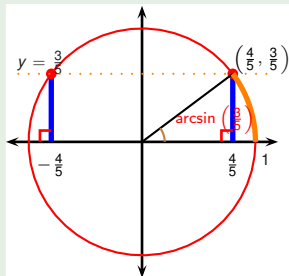
## Example

Find all solutions of the equation.

$$\sin \theta = \frac{3}{5}$$

$$\theta = \arcsin\left(\frac{3}{5}\right)$$

$\arcsin$  implies radians



## Example

Find all solutions of the equation.

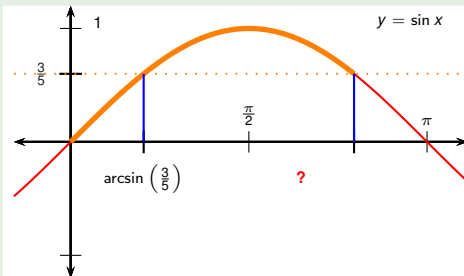
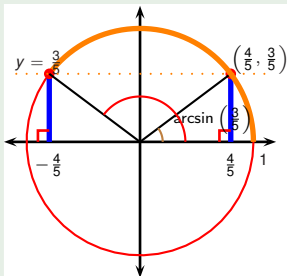
$$\sin \theta = \frac{3}{5}$$

$$\theta = \arcsin\left(\frac{3}{5}\right)$$

or

?

$\arcsin$  implies radians





## Example

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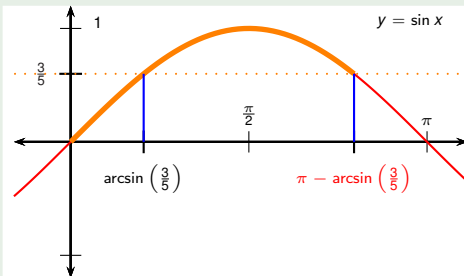
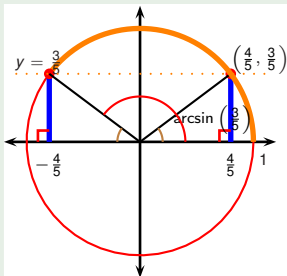
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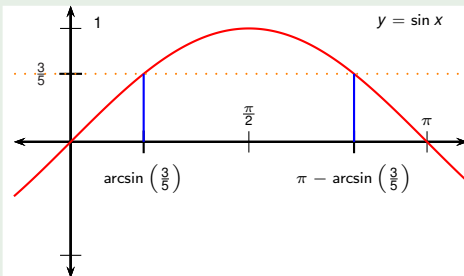
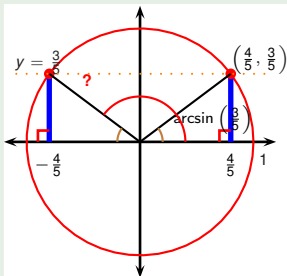
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$\arcsin$  implies radians



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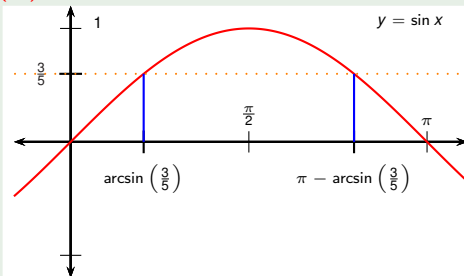
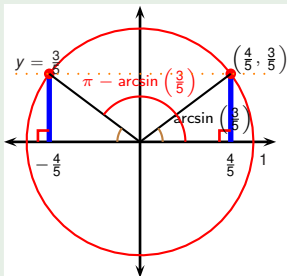
$$\sin \theta = \frac{3}{5}$$

$$\theta = \arcsin\left(\frac{3}{5}\right)$$

$\arcsin$  implies radians

or

$$\pi - \arcsin\left(\frac{3}{5}\right)$$



## Example

Find all solutions of the equation.

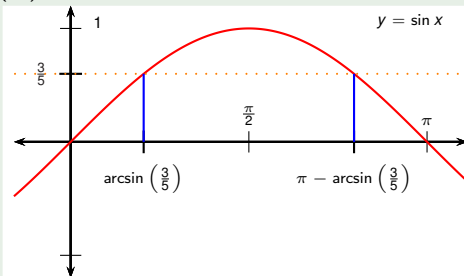
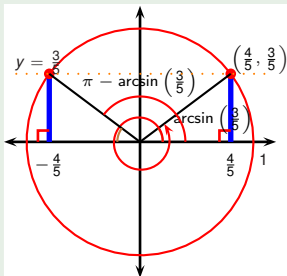
$$\sin \theta = \frac{3}{5}$$

$$\theta = \arcsin\left(\frac{3}{5}\right) + k \cdot (2\pi)$$

arcsin implies radians

or

$$\pi - \arcsin\left(\frac{3}{5}\right)$$



## Example

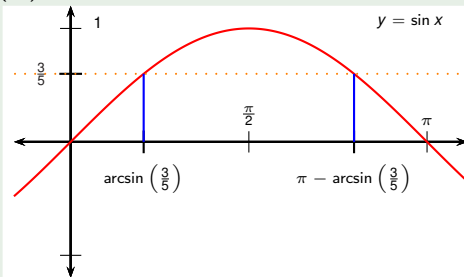
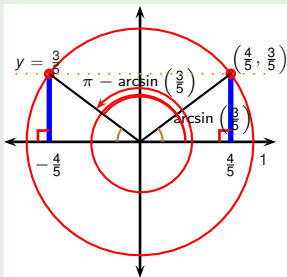
Find all solutions of the equation.

$$\sin \theta = \frac{3}{5}$$

$$\theta = \arcsin\left(\frac{3}{5}\right) + k \cdot (2\pi) \quad \left| \text{arcsin implies radians} \right.$$

or

$$\pi - \arcsin\left(\frac{3}{5}\right) + k \cdot (2\pi)$$



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Find all solutions of the equation.

$$\sin \theta = \frac{3}{5}$$

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$\arcsin$  implies radians

or

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