

Precalculus

Inverse trig and special angles

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Example

Find $\arcsin\left(\frac{1}{2}\right)$.

Observation

- $\arcsin y =$ *the appropriate angle whose sine equals y .*

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- $\sin \left(? \right) = \frac{1}{2}$.

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Find $\arcsin\left(\frac{1}{2}\right)$.

- $\sin(?) = \frac{1}{2}$.

Observation

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Example

Find $\arcsin\left(\frac{1}{2}\right)$.

- $\sin\left(\text{?}\right) = \frac{1}{2}$.

Observation

- $\arcsin y =$ *the appropriate angle whose sine equals y .*

Example

Find $\arcsin\left(\frac{1}{2}\right)$.

- $\sin\left(\textcolor{red}{?}\right) = \frac{1}{2}.$

Observation

- $\arcsin y =$ *the appropriate angle whose sine equals y .*

Example

Find $\arcsin\left(\frac{1}{2}\right)$.

- $\sin\left(\frac{\pi}{6}\right) = \frac{1}{2}$.

Observation

- $\arcsin y =$ *the appropriate angle whose sine equals y .*
- *Important: the output angle must lie in the interval $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$.*

Example

Find $\arcsin\left(\frac{1}{2}\right)$.

- $\sin\left(\frac{\pi}{6}\right) = \frac{1}{2}$.
- $-\frac{\pi}{2} \leq \frac{\pi}{6} \leq \frac{\pi}{2}$.

Observation

- $\arcsin y =$ *the appropriate angle whose sine equals y .*
- *Important: the output angle must lie in the interval $[-\frac{\pi}{2}, \frac{\pi}{2}]$.*

Example

Find $\arcsin\left(\frac{1}{2}\right)$.

- $\sin\left(\frac{\pi}{6}\right) = \frac{1}{2}$.
- $-\frac{\pi}{2} \leq \frac{\pi}{6} \leq \frac{\pi}{2}$.
- Therefore $\arcsin\left(\frac{1}{2}\right) = \frac{\pi}{6}$.