



Trigonometry Identities - Pythagorean Problem Cos to Sin (without Identity, Quadrant as Degrees)

¹ $90^\circ < \gamma < 180^\circ$

Solve for sine from cosine using trig identities

Solve:

$$\cos(\gamma) = -\frac{2}{8}$$
$$\sin(\gamma) = ?$$

| | |
|--------------------------------------|--------------------------------------|
| A | B |
| $\sin(\gamma) = \frac{\sqrt{22}}{4}$ | $\sin(\gamma) = \frac{\sqrt{15}}{4}$ |

$180^\circ < \alpha < 270^\circ$

Solve for sine from cosine using trig identities

Solve:

$$\cos(\alpha) = -\frac{4}{9}$$
$$\sin(\alpha) = ?$$

| | |
|---------------------------------------|---------------------------------------|
| A | B |
| $\sin(\alpha) = -\frac{\sqrt{65}}{9}$ | $\sin(\alpha) = -\frac{\sqrt{57}}{9}$ |

³

$90^\circ < \beta < 180^\circ$

Solve for sine from cosine using trig identities

Solve:

$$\cos(\beta) = -\frac{3}{4}$$
$$\sin(\beta) = ?$$

| | |
|------------------------------------|------------------------------------|
| A | B |
| $\sin(\beta) = \frac{\sqrt{2}}{4}$ | $\sin(\beta) = \frac{\sqrt{7}}{4}$ |

⁴

$0^\circ < \theta < 90^\circ$

Solve for sine from cosine using trig identities

Solve:

$$\cos(\theta) = \frac{1}{4}$$
$$\sin(\theta) = ?$$

| | |
|--------------------------------------|--------------------------------------|
| A | B |
| $\sin(\theta) = \frac{\sqrt{21}}{4}$ | $\sin(\theta) = \frac{\sqrt{15}}{4}$ |

⁵ $270^\circ < \alpha < 360^\circ$

Solve for sine from cosine using trig identities

Solve:

$$\cos(\alpha) = \frac{1}{8}$$
$$\sin(\alpha) = ?$$

| | |
|---------------------------------------|---------------------------------------|
| A | B |
| $\sin(\alpha) = -\frac{3\sqrt{7}}{8}$ | $\sin(\alpha) = -\frac{\sqrt{71}}{8}$ |

⁶ $180^\circ < \theta < 270^\circ$

Solve for sine from cosine using trig identities

Solve:

$$\cos(\theta) = -\frac{1}{4}$$
$$\sin(\theta) = ?$$

| | |
|---------------------------------------|---------------------------------------|
| A | B |
| $\sin(\theta) = -\frac{\sqrt{21}}{4}$ | $\sin(\theta) = -\frac{\sqrt{15}}{4}$ |

⁷ $90^\circ < \beta < 180^\circ$

Solve for sine from cosine using trig identities

Solve:

$$\cos(\beta) = -\frac{1}{8}$$
$$\sin(\beta) = ?$$

| | |
|-------------------------------------|-------------------------------------|
| A | B |
| $\sin(\beta) = \frac{3\sqrt{7}}{8}$ | $\sin(\beta) = \frac{\sqrt{51}}{8}$ |

⁸ $180^\circ < \gamma < 270^\circ$

Solve for sine from cosine using trig identities

Solve:

$$\cos(\gamma) = -\frac{3}{5}$$
$$\sin(\gamma) = ?$$

| | |
|-------------------------------|---------------------------------------|
| A | B |
| $\sin(\gamma) = -\frac{4}{5}$ | $\sin(\gamma) = -\frac{\sqrt{15}}{5}$ |