



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

1 $\tan(\alpha) \rightarrow$ negative
—
Solve for sine from cosine using trig identities

Solve:
 $\cos(\alpha) = \frac{2}{5}$
 $\sin(\alpha) = ?$

A	B
$\sin(\alpha) = -\frac{\sqrt{21}}{5}$	$\sin(\alpha) = -\frac{\sqrt{29}}{5}$

2 $\tan(\gamma) \rightarrow$ positive
—
Solve for sine from cosine using trig identities

Solve:
 $\cos(\gamma) = \frac{1}{6}$
 $\sin(\gamma) = ?$

A	B
$\sin(\gamma) = \frac{\sqrt{11}}{6}$	$\sin(\gamma) = \frac{\sqrt{35}}{6}$

3 $\tan(\beta) \rightarrow$ positive
—
Solve for sine from cosine using trig identities

Solve:
 $\cos(\beta) = \frac{1}{7}$
 $\sin(\beta) = ?$

A	B
$\sin(\beta) = \frac{4\sqrt{3}}{7}$	$\sin(\beta) = \frac{2\sqrt{2}}{7}$

4 $\tan(\beta) \rightarrow$ negative
—
Solve for sine from cosine using trig identities

Solve:
 $\cos(\beta) = -\frac{6}{7}$
 $\sin(\beta) = ?$

A	B
$\sin(\beta) = \frac{\sqrt{21}}{7}$	$\sin(\beta) = \frac{\sqrt{13}}{7}$

5 $\tan(\theta) \rightarrow$ positive
—
Solve for sine from cosine using trig identities

Solve:
 $\cos(\theta) = -\frac{5}{8}$
 $\sin(\theta) = ?$

A	B
$\sin(\theta) = -\frac{\sqrt{66}}{8}$	$\sin(\theta) = -\frac{\sqrt{39}}{8}$

6 $\tan(\gamma) \rightarrow$ negative
—
Solve for sine from cosine using trig identities

Solve:
 $\cos(\gamma) = -\frac{1}{8}$
 $\sin(\gamma) = ?$

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

7 $\tan(\gamma) \rightarrow$ negative
—
Solve for sine from cosine using trig identities

Solve:
 $\cos(\gamma) = -\frac{2}{4}$
 $\sin(\gamma) = ?$

A	B
$\sin(\gamma) = \frac{\sqrt{3}}{2}$	$\sin(\gamma) = \frac{2}{2}$

8 $\tan(\alpha) \rightarrow$ negative
—
Solve for sine from cosine using trig identities

Solve:
 $\cos(\alpha) = -\frac{3}{8}$
 $\sin(\alpha) = ?$

A	B
$\sin(\alpha) = \frac{\sqrt{55}}{8}$	$\sin(\alpha) = -\frac{\sqrt{55}}{8}$