



Trigonometry Identities - Pythagorean Problem Cos to Sin (with Identity, Quadrant as Ratio)



1 Using:
 $\cos^2(\beta) = 1 - \sin^2(\beta)$ Solve for sine from cosine using trig identities
 $\tan(\beta) \rightarrow$ positive

Solve:	A	B
$\cos(\beta) = -\frac{4}{6}$	$\sin(\beta) = -\frac{\sqrt{5}}{3}$	$\sin(\beta) = -\frac{\sqrt{14}}{3}$
$\sin(\beta) = ?$		

2 Using:
 $\cos^2(\alpha) = 1 - \sin^2(\alpha)$ Solve for sine from cosine using trig identities
 $\tan(\alpha) \rightarrow$ negative

Solve:	A	B
$\cos(\alpha) = -\frac{2}{4}$	$\sin(\alpha) = \frac{\sqrt{3}}{2}$	$\sin(\alpha) = \frac{\sqrt{7}}{2}$
$\sin(\alpha) = ?$		

3 Using:
 $\cos^2(\theta) = 1 - \sin^2(\theta)$ Solve for sine from cosine using trig identities
 $\tan(\theta) \rightarrow$ positive

Solve:	A	B
$\cos(\theta) = \frac{5}{8}$	$\sin(\theta) = \frac{\sqrt{39}}{8}$	$\sin(\theta) = -\frac{\sqrt{39}}{8}$
$\sin(\theta) = ?$		

4 Using:
 $\cos^2(\theta) = 1 - \sin^2(\theta)$ Solve for sine from cosine using trig identities
 $\tan(\theta) \rightarrow$ negative

Solve:	A	B
$\cos(\theta) = \frac{2}{4}$	$\sin(\theta) = -\frac{2\sqrt{3}}{2}$	$\sin(\theta) = -\frac{\sqrt{3}}{2}$
$\sin(\theta) = ?$		

5 Using:
 $\cos^2(\theta) = 1 - \sin^2(\theta)$ Solve for sine from cosine using trig identities
 $\tan(\theta) \rightarrow$ negative

Solve:	A	B
$\cos(\theta) = \frac{3}{7}$	$\sin(\theta) = -\frac{2\sqrt{10}}{7}$	$\sin(\theta) = -\frac{2\sqrt{6}}{7}$
$\sin(\theta) = ?$		

6 Using:
 $\cos^2(\beta) = 1 - \sin^2(\beta)$ Solve for sine from cosine using trig identities
 $\tan(\beta) \rightarrow$ negative

Solve:	A	B
$\cos(\beta) = -\frac{2}{5}$	$\sin(\beta) = \frac{\sqrt{21}}{\sqrt{23}}$	$\sin(\beta) = \frac{\sqrt{21}}{5}$
$\sin(\beta) = ?$		

7 Using:
 $\cos^2(\alpha) = 1 - \sin^2(\alpha)$ Solve for sine from cosine using trig identities
 $\tan(\alpha) \rightarrow$ positive

Solve:	A	B
$\cos(\alpha) = \frac{2}{5}$	$\sin(\alpha) = \frac{\sqrt{21}}{5}$	$\sin(\alpha) = \frac{\sqrt{33}}{5}$
$\sin(\alpha) = ?$		

8 Using:
 $\cos^2(\beta) = 1 - \sin^2(\beta)$ Solve for sine from cosine using trig identities
 $\tan(\beta) \rightarrow$ positive

Solve:	A	B
$\cos(\beta) = -\frac{7}{8}$	$\sin(\beta) = -\frac{\sqrt{15}}{\sqrt{46}}$	$\sin(\beta) = -\frac{\sqrt{15}}{8}$
$\sin(\beta) = ?$		