**The method: The Pythagorean identity**

$\sin^2\theta + \cos^2\theta = 1$. Find the missing value, then choose its sign from the quadrant.

$\sin\theta = -\frac{12}{37}$, $\theta$ in quadrant IV: $\tan\theta = -\frac{12}{35}$

$\cos^2\theta = 1 - (-\frac{12}{37})^2 = \frac{1225}{1369}$ $\sin^2\theta + \cos^2\theta = 1$

$\cos\theta = \frac{35}{37}$ cos is positive in quadrant IV

$\tan\theta = \sin\theta \div \cos\theta = -\frac{12}{35}$

$\cos\theta = \frac{21}{29}$, $\theta$ in quadrant IV: $\sin\theta = -\frac{20}{29}$

$\sin^2\theta = 1 - (\frac{21}{29})^2 = \frac{400}{841}$ $\sin^2\theta + \cos^2\theta = 1$

$\sin\theta = -\frac{20}{29}$ sin is negative in quadrant IV

$\sin\theta = -\frac{7}{25}$, $\theta$ in quadrant IV: $\cos\theta = \frac{24}{25}$

$\cos^2\theta = 1 - (-\frac{7}{25})^2 = \frac{576}{625}$ $\sin^2\theta + \cos^2\theta = 1$

$\cos\theta = \frac{24}{25}$ cos is positive in quadrant IV

**Problems 1 and 2 worked out · Version 0A**

$\cos\theta = \frac{40}{41}$, $\theta$ in quadrant I: $\tan\theta = \frac{9}{40}$

$\sin^2\theta = 1 - (\frac{40}{41})^2 = \frac{81}{1681}$ $\sin^2\theta + \cos^2\theta = 1$

$\sin\theta = \frac{9}{41}$ sin is positive in quadrant I

$\tan\theta = \sin\theta \div \cos\theta = \frac{9}{40}$

$\sin\theta = -\frac{7}{25}$, $\theta$ in quadrant IV: $\cos\theta = \frac{24}{25}$

$\cos^2\theta = 1 - (-\frac{7}{25})^2 = \frac{576}{625}$ $\sin^2\theta + \cos^2\theta = 1$

$\cos\theta = \frac{24}{25}$ cos is positive in quadrant IV

# Answer key



1) $\frac{9}{40}$ 2) $\frac{24}{25}$ 3) $-\frac{5}{13}$ 4) $\frac{12}{13}$ 5) $-\frac{20}{21}$ 6) $\frac{9}{40}$ 7) $\frac{8}{15}$
8) $\frac{3}{4}$ 9) $\frac{5}{13}$ 10) $\frac{5}{12}$ 11) $-\frac{5}{12}$ 12) $\frac{3}{4}$