

A43 hints for select problems

#9 - see next page

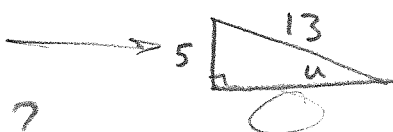
#13 - same as #9 but w/ radians

#17 - What 2 angles on the unit circle add to 285°

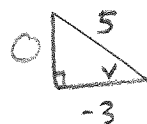
$$285^\circ = \underline{\quad} + \underline{\quad}$$

$$\text{now } \sin(\underline{\quad} + \underline{\quad}) = \underline{\quad} + \underline{\quad}$$

#31 $\sin u = \frac{5}{13}$



$$\cos v = \frac{-3}{5}$$



so $\cos u = ?$

$\sin v = ?$

#35 see

#51 remember your Pythagorean Identities

$$\cos^2 y = \underline{\quad}$$

105°

9. $\sin(60^\circ + 45^\circ)$

$$\begin{aligned} &= \sin 60^\circ \cos 45^\circ + \cos 60^\circ \sin 45^\circ = \cos 60^\circ \cos 45^\circ - \sin 60^\circ \sin 45^\circ \\ &= \frac{\sqrt{3}}{2} \cdot \frac{\sqrt{2}}{2} + \frac{1}{2} \cdot \frac{\sqrt{2}}{2} = \frac{1}{2} \cdot \frac{\sqrt{2}}{2} - \frac{\sqrt{3}}{2} \cdot \frac{\sqrt{2}}{2} \\ &= \frac{\sqrt{6} + \sqrt{2}}{4} \end{aligned}$$

$\cos(60^\circ + 45^\circ)$

$$\begin{aligned} &= \cos 60^\circ \cos 45^\circ - \sin 60^\circ \sin 45^\circ \\ &= \frac{1}{2} \cdot \frac{\sqrt{2}}{2} - \frac{\sqrt{3}}{2} \cdot \frac{\sqrt{2}}{2} \\ &= \frac{\sqrt{2} - \sqrt{6}}{4} \end{aligned}$$

$\tan(60^\circ + 45^\circ)$

$$\begin{aligned} &= \frac{\sqrt{6} + \sqrt{2}}{4} \cdot \frac{4}{\sqrt{2} - \sqrt{6}} \\ &= \frac{\sqrt{6} + \sqrt{2}}{\sqrt{2} - \sqrt{6}} \cdot \frac{\sqrt{2} + \sqrt{6}}{\sqrt{2} + \sqrt{6}} \\ &= \frac{6 + 2\sqrt{12} + 2}{2 - 6} \\ &= \frac{8 + 4\sqrt{3}}{-4} \\ &= -2 - \sqrt{3} \end{aligned}$$

or

$\tan(60^\circ + 45^\circ)$

$$\begin{aligned} &= \frac{\tan 60^\circ + \tan 45^\circ}{1 - \tan 60^\circ \tan 45^\circ} \\ &= \frac{\sqrt{3} + 1}{1 - \sqrt{3}} \cdot \frac{1 + \sqrt{3}}{1 + \sqrt{3}} \\ &= \frac{1 + 2\sqrt{3} + 3}{1 - 3} \\ &= \frac{4 + 2\sqrt{3}}{-2} \\ &= -2 - \sqrt{3} \end{aligned}$$