(13) (a) (i)

$AC^2 = (\sqrt{5})^2 - 1^2$

$= 5 - 1$

$= 4$

$AC = 2$

$AD^2 = (\sqrt{10})^2 - 1^2$

$= 10 - 1$

$= 9$

$AD = 3$

$\cos p = \frac{2}{\sqrt{5}}$

$\cos q = \frac{3}{\sqrt{10}}$

(b) $\sin(p+q) = \sin p \cos q + \cos p \sin q$

$= \left(\frac{1}{\sqrt{5}} \times \frac{3}{\sqrt{10}}\right) + \left(\frac{2}{\sqrt{5}} \times \frac{1}{\sqrt{10}}\right)$

$= \frac{3}{\sqrt{50}} + \frac{2}{\sqrt{50}}$

$= \frac{5}{\sqrt{50}}$

$= \frac{5}{\sqrt{25}\sqrt{2}}$

$= \frac{5}{5\sqrt{2}} = \frac{1}{\sqrt{2}}$

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