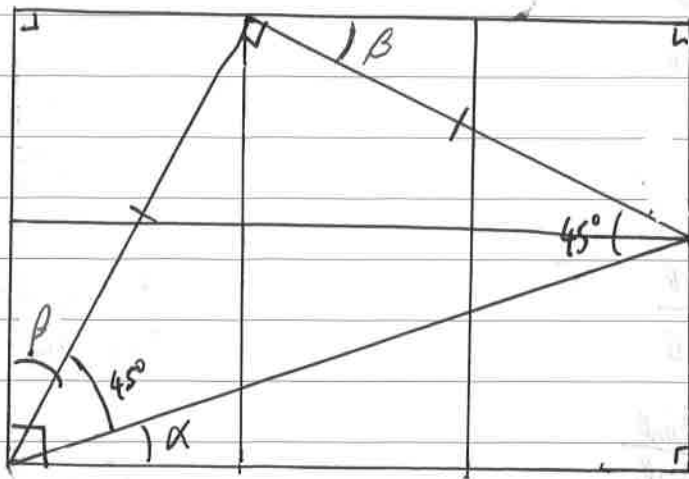


6. $\gamma = 45^\circ$



$$\therefore \alpha + \beta = 90^\circ - 45^\circ = 45^\circ$$

$$\alpha + \beta = \gamma //$$

6/2/15.

how about proving mathematically?



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$$Q6) \quad \sqrt{10x^2} \sin \alpha = \sqrt{5x^2} \sin \beta = \sqrt{2x^2} \sin \gamma$$

$$\begin{aligned} \sin \alpha &= \frac{x}{\sqrt{10x^2}} & \sin \beta &= \frac{x}{\sqrt{5x^2}} & \sin \gamma &= \frac{x}{\sqrt{2x^2}} \\ \cos \alpha &= \frac{3x}{\sqrt{10x^2}} & \cos \beta &= \frac{2x}{\sqrt{5x^2}} & \cos \gamma &= \frac{x}{\sqrt{2x^2}} \end{aligned}$$

$$\begin{aligned} \sin(\alpha + \beta) &= \sin \alpha \cos \beta + \cos \alpha \sin \beta \\ &= \left(\frac{x}{\sqrt{10x^2}}\right) \left(\frac{2x}{\sqrt{5x^2}}\right) + \left(\frac{3x}{\sqrt{10x^2}}\right) \left(\frac{x}{\sqrt{5x^2}}\right) \end{aligned}$$

$$= \frac{2x^2 + 3x^2}{\sqrt{50x^4}}$$

$$= \frac{5x^2}{5\sqrt{2x^4}}$$

$$= \frac{x^2}{\sqrt{2x^4}}, \quad x > 0$$

$$= \frac{x}{\sqrt{2x^2}}$$

$$= \sin \gamma \quad \checkmark$$

$$\therefore \sin(\alpha + \beta) = \sin \gamma$$

$$\therefore \alpha + \beta = \gamma \quad \checkmark$$