

الف) $\tan(\alpha + \beta) = \frac{\tan \alpha + \tan \beta}{1 - \tan \alpha \tan \beta}$



$\sin \alpha = \frac{4}{5}$
 $\cos \alpha = \frac{3}{5}$

$\sin \beta = \frac{12}{13}$
 $\cos \beta = \frac{5}{13}$

$\tan(\alpha + \beta) = \frac{\tan \alpha + \tan \beta}{1 - \tan \alpha \tan \beta} = \frac{\frac{4}{3} + \frac{12}{5}}{1 - \frac{4}{3} \cdot \frac{12}{5}} = \frac{\frac{32}{15}}{1 - \frac{16}{5}} = \frac{\frac{32}{15}}{-\frac{11}{5}} = -\frac{32}{11}$

$\sin(\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta = \frac{4}{5} \cdot \frac{5}{13} + \frac{3}{5} \cdot \frac{12}{13} = \frac{20}{65} + \frac{36}{65} = \frac{56}{65}$

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$\frac{H}{12} = 15^\circ$
 $\tan 15^\circ = \frac{H}{12}$
 $H = 12 \tan 15^\circ$



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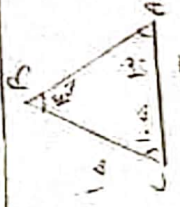
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