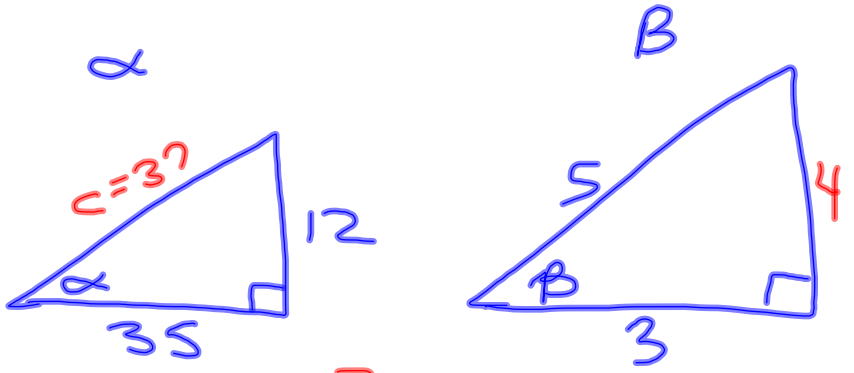
5-7-14
3rd Trig

$$\cos(\alpha \pm B) = \cos\alpha \cdot \cos B \mp \sin\alpha \cdot \sin B$$

$$\sin(\alpha \pm B) = \sin\alpha \cos B \pm \sin B \cdot \cos\alpha$$

① If $\tan\alpha = \frac{12}{35}$ and $\cos B = \frac{3}{5}$

find $\sin(\alpha + B)$



$12^2 + 35^2 = c^2$

$c = 37$

$$\sin(\alpha + B) = \sin\alpha \cdot \cos B + \sin B \cdot \cos\alpha$$

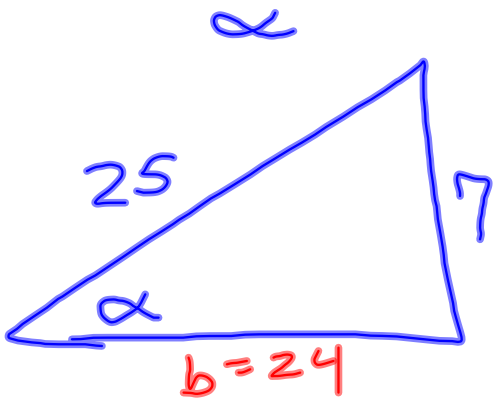
$$\frac{12}{37} \cdot \frac{3}{5} + \frac{4}{5} \cdot \frac{35}{37}$$

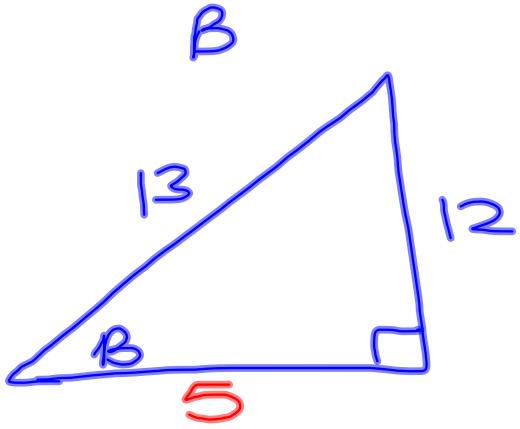
$$\frac{36}{185} + \frac{140}{185}$$

$$\frac{176}{185}$$

If $\sin\alpha = \frac{7}{25}$ and $\sin B = \frac{12}{13}$,

find $\cos(\alpha - B)$





$7^2 + b^2 = 25^2$

$\cos(\alpha - B) = \cos\alpha \cdot \cos B + \sin\alpha \cdot \sin B$

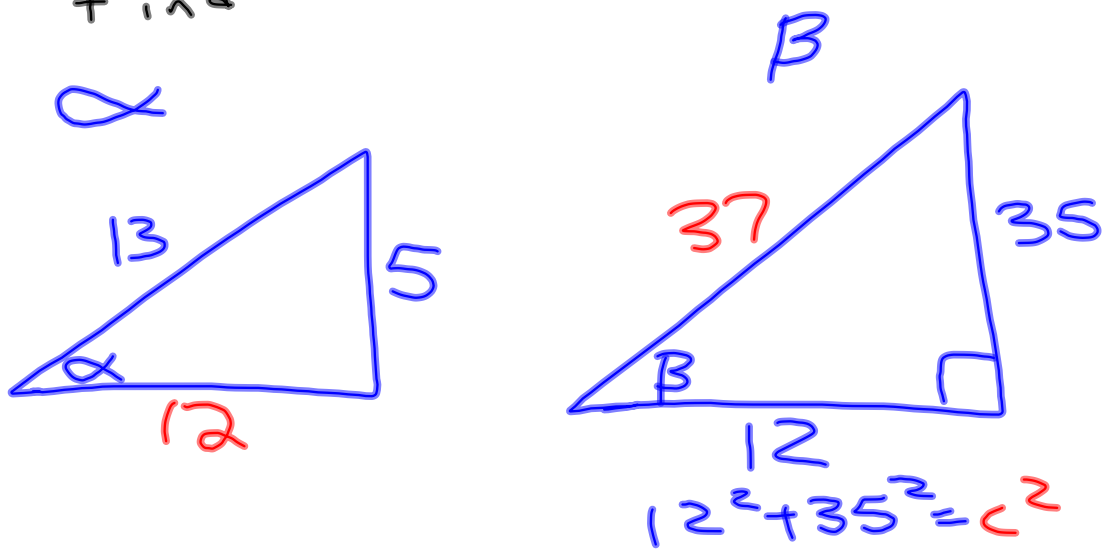
$\frac{24}{25} \cdot \frac{5}{13} + \frac{7}{25} \cdot \frac{12}{13}$

$\frac{120}{325} + \frac{84}{325}$

$\frac{204}{325}$

③ If $\csc\alpha = \frac{13}{5}$ and $\tan\beta = \frac{35}{12}$

find $\sin(\alpha+\beta)$



$$\sin(\alpha+\beta) = \sin\alpha\cdot\cos\beta + \sin\beta\cdot\cos\alpha$$

$$\frac{5}{13}\cdot\frac{12}{37} + \frac{35}{37}\cdot\frac{12}{13}$$

$$\frac{60}{481} + \frac{420}{481}$$

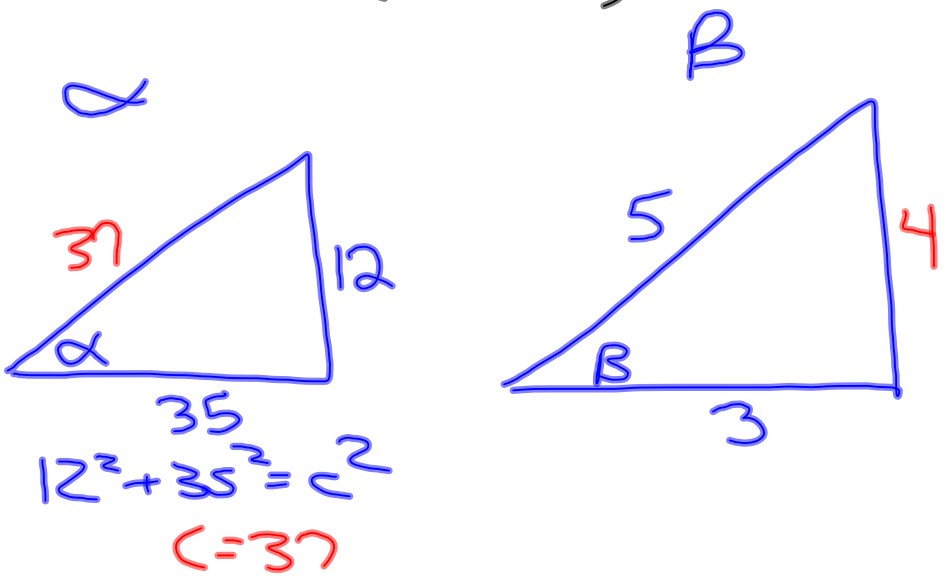
$$\frac{480}{481}$$

5-7-14

4th Trig

If $\tan\alpha = \frac{12}{35}$ and $\cos\beta = \frac{3}{5}$,

find $\sin(\alpha+\beta)$.



$$\sin(\alpha+\beta) = \sin\alpha\cdot\cos\beta + \sin\beta\cdot\cos\alpha$$

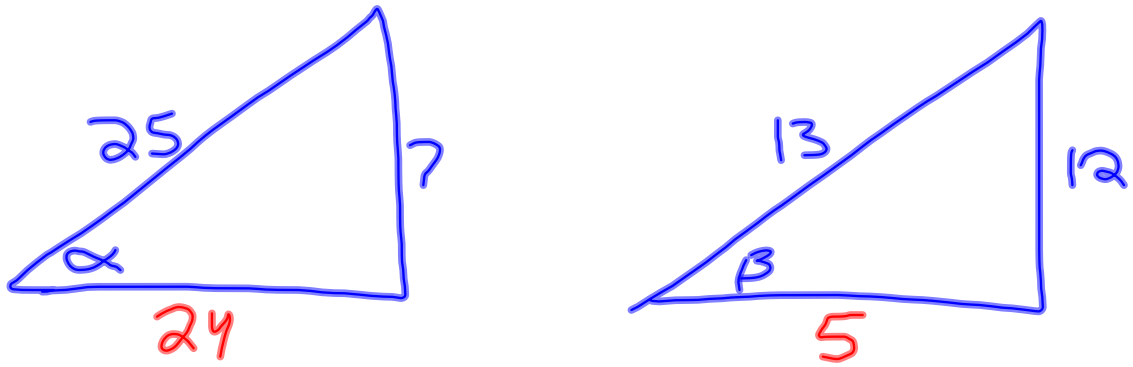
$$\frac{12}{37}\cdot\frac{3}{5} + \frac{4}{5}\cdot\frac{35}{37}$$

$$\frac{36}{185} + \frac{140}{185}$$

$$\frac{176}{185}$$

② If $\sin\alpha = \frac{7}{25}$ and $\sin\beta = \frac{12}{13}$,

find $\cos(\alpha+\beta)$



$$\cos(\alpha+B) = \cos\alpha\cdot\cos B - \sin\alpha\cdot\sin B$$

$$\downarrow$$

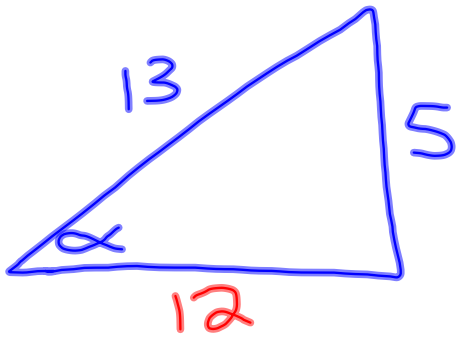
$$\frac{24}{25}\cdot\frac{5}{13} - \frac{7}{25}\cdot\frac{12}{13}$$

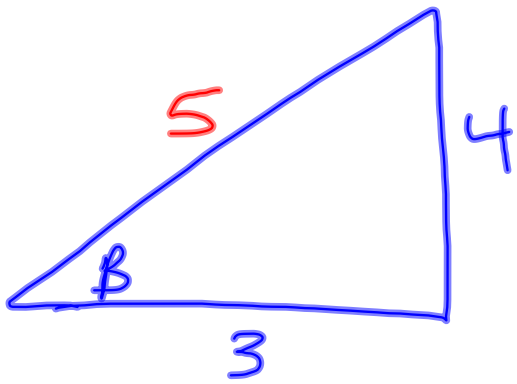
$$\frac{120}{325} - \frac{84}{325}$$

$$\frac{36}{325}$$

If $\csc\alpha = \frac{13}{5}$ and $\tan\beta = \frac{4}{3}$,

find $\cos(\alpha - \beta)$





$\cos(\alpha - \beta) = \cos\alpha \cdot \cos\beta + \sin\alpha \cdot \sin\beta$

$\downarrow$

$\frac{12}{13} \cdot \frac{3}{5} + \frac{5}{13} \frac{4}{5}$

$\frac{36}{65} + \frac{20}{65}$

$\frac{56}{65}$