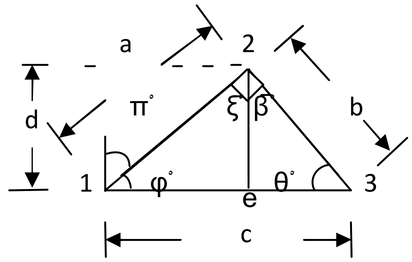
إثبات نظرية فيتاغورس  باستخدام الجيب والجتا وتطابق الزوايا

نظرية فيتاغورس :  $c^2 = a^2 + b^2$




$\Delta 123 \quad \cos \varphi^{\circ} = \frac{a}{c}$

$\Delta 12e \quad \cos \varphi^{\circ} = \frac{1e}{a}$

But $\cos \varphi^{\circ} = \cos \varphi^{\circ}$

$\therefore \quad \frac{a}{c} = \frac{1e}{a} \leftrightarrow a^2 = 1e \times c \quad \ldots\ldots\ eq^{\underline{n1}}$

And $\boldsymbol{\pi}^{\circ} + \boldsymbol{\varphi}^{\circ} = 90^{\circ} \quad , \xi^{\circ} + \beta^{\circ} = \mathbf{90}^{\circ}$

**but** $\pi^{\circ} = \boldsymbol{\xi}^{\circ}$ بالتناظر

$\therefore \quad \varphi^{\circ} = \boldsymbol{\beta}^{\circ}$

$\Delta 123 \quad \sin \varphi^{\circ} = \frac{b}{c}$

$\Delta\ e23 \sin \beta^{\circ} = \frac{e3}{b}$

$\therefore \quad \frac{\mathbf{b}}{\mathbf{c}} = \mathbf{e}\frac{\mathbf{3}}{\mathbf{b}} \leftrightarrow b^2 = e3 \times c \quad \ldots\ldots\ eq^{\underline{n2}}$

Add $eq^{\underline{n1}} + eq^{\underline{n2}}$

$$
\begin{array}{ll}
 & a^2 = 1e \times c \\
+ & b^2 = e3 \times c \\
\hline
\end{array}
$$

$a^2 + b^2 = 1e \times c + e3 \times c \leftrightarrow c(1e + e3)$

But $(1e + e3) = c$

$$a^2 + b^2 = \mathbf{c\ (c\ )}$$

$$\therefore\ c^2 = a^2 + b^2$$