Trigo $t_g\alpha + ct_g\alpha = 4$

$0 < \alpha < 90^0$

$t_g\alpha + ct_g\alpha = 4$

$\alpha = ?$, $t_g\alpha = a$

$a + \frac{1}{a} = 4$

$a^2 - 4a + 1 = 0$

$a_{1/2} = 2 \pm \sqrt{4-1}$ ——— $2+\sqrt{3}$

$2 - \sqrt{3}$ $(\alpha < 45^0)$

$t_g\alpha = 2 - \sqrt{3}$

———————

$t_g\alpha + ct_g\alpha = 4$

$\frac{sin\alpha}{cos\alpha} + \frac{cos\alpha}{sin\alpha} = 4$

$\frac{sin^2\alpha + cos^2\alpha}{Sin\alpha cos\alpha} = 4$

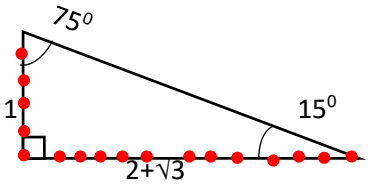
$4sin\alpha cos\alpha = 1$

$2sin\alpha cos\alpha = \frac{1}{2}$

$Sin2\alpha = \frac{1}{2}$ $(t_g15^0)\,(t_g75^0) = 1$

$2\alpha = 30^0$

$\alpha = 15^0$



If we check $t_g\beta = 2 + \sqrt{3}$

$B = 90 - 15 = 75^0$

$t_g(\beta - \alpha) = \frac{2+\sqrt{3}-(2-\sqrt{3})}{1+1} = \frac{2\sqrt{3}}{3} = \sqrt{3} = t_g 60°$