Tarea 5 Unidad 2

En los siguientes problemas use la ley de los cosenos para resolver el triángulo.

54. γ=65°, a=5, b=8.

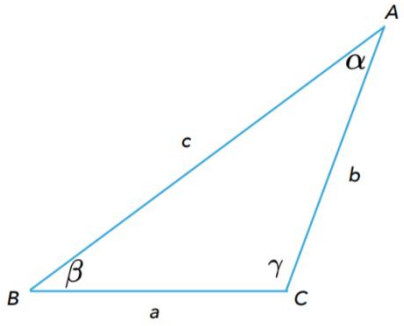
a= 5 **α=?** $c^2 = a^2 + b^2 - 2abCos\gamma$ $\alpha = Cos^{-1}\left(\frac{b^2+c^2-a^2}{2bc}\right)$

b= 8 **β=?** $c^2 = 5^2 + 8^2 - 2(5)(8)Cos65°$ $\alpha = Cos^{-1}\left(\frac{8^2+7.43^2-5^2}{2(8)(7.43)}\right)$

c=? **γ= 65°** $c^2 = 89 - 33.810$ $\alpha = Cos^{-1}\left(\frac{94.2049}{118.88}\right)$

$\sqrt{c^2} = \sqrt{55.19}$ $\alpha = Cos^{-1}(0.7925)$

$\boldsymbol{c = 7.43}$ $\boldsymbol{\alpha = 37.59°}$



$\beta = Cos^{-1}\left(\frac{a^2+c^2-b^2}{2ac}\right)$

$\beta = Cos^{-1}\left(\frac{5^2+7.43^2-8^2}{2(5)(7.43)}\right)$

$\beta = Cos^{-1}\left(\frac{16.2049}{74.3}\right)$

$\beta = Cos^{-1}(0.219)$

$\boldsymbol{\beta = 77.402°}$

55. a=8, b=10, c=7.

a= 8 **α=?** $\alpha = Cos^{-1}\left(\frac{b^2+c^2-a^2}{2bc}\right)$ $\beta = Cos^{-1}\left(\frac{a^2+c^2-b^2}{2ac}\right)$ $\gamma = Cos^{-1}\left(\frac{a^2+b^2-c^2}{2ab}\right)$

b= 10 **β=?** $\alpha = Cos^{-1}\left(\frac{10^2+7^2-8^2}{2(10)(7)}\right)$ $\beta = Cos^{-1}\left(\frac{8^2+7^2-10^2}{2(8)(7)}\right)$ $\gamma = Cos^{-1}\left(\frac{8^2+10^2-7^2}{2(8)(10)}\right)$

c= 7 **γ=?** $\alpha = Cos^{-1}\left(\frac{85}{140}\right)$ $\beta = Cos^{-1}\left(\frac{13}{112}\right)$ $\gamma = Cos^{-1}\left(\frac{115}{160}\right)$

$\alpha = Cos^{-1}(0.6071)$ $\beta = Cos^{-1}(0.117)$ $\gamma = Cos^{-1}(0.71875)$

$\boldsymbol{\alpha = 52.6169°}$ $\boldsymbol{\beta = 83.3316°}$ $\boldsymbol{\gamma = 44.049°}$

56. γ =97.33°, a=3, b=6.

a= 3 **α=?** $c^2 = a^2 + b^2 - 2abCos\gamma$ $\alpha = Cos^{-1}\left(\frac{b^2+c^2-a^2}{2bc}\right)$ $\beta = Cos^{-1}\left(\frac{a^2+c^2-b^2}{2ac}\right)$

b= 6 **β=?** $c^2 = 3^2 + 6^2 - 2(3)(6)Cos97.33°$ $\alpha = Cos^{-1}\left(\frac{6^2+7.04^2-3^2}{2(6)(7.04)}\right)$ $\beta = Cos^{-1}\left(\frac{3^2+7.04^2-6^2}{2(3)(7.04)}\right)$

c=? **γ= 97.33°** $c^2 = 45 + 4.60$ $\alpha = Cos^{-1}\left(\frac{76.5616}{84.5136}\right)$ $\beta = Cos^{-1}\left(\frac{22.5616}{42.24}\right)$

$\sqrt{c^2} = \sqrt{49.60}$ $\alpha = Cos^{-1}(0.90638)$ $\beta = Cos^{-1}(0.5349)$

$\boldsymbol{c = 7.0428}$ $\boldsymbol{\alpha = 25°}$ $\boldsymbol{\beta = 57.69°}$

57. a=11, b=9.5, c=8.2.

a=11 **α =?** $\alpha = \cos^{-1}\left(\frac{b^2+c^2-a^2}{2bc}\right)$ $\beta = \cos^{-1}\left(\frac{a^2+c^2-b^2}{2ac}\right)$ $\gamma = \cos^{-1}\left(\frac{a^2+b^2-c^2}{2ac}\right)$

b=9.5 **β=?** $\alpha = \cos^{-1}\left(\frac{(9.5)^2+(8.2)^2-(11)^2}{2(9,5)(8.2)}\right)$ $\beta = \cos^{-1}\left(\frac{(11)^2+(8.2)^2-(9.5)^2}{2(11)(8.2)}\right)$ $\gamma = \cos^{-1}\left(\frac{(11)^2+(9.5)^2-(8.2)^2}{2(11)(9.5)}\right)$

c=8.2 **γ=?** $\alpha = \cos^{-1}(0.235)$ $\beta = \cos^{-1}(0.54319)$ $\gamma = \cos^{-1}(0.690)$

$\boldsymbol{\alpha = 76.46°}$ $\boldsymbol{\beta = 57.1°}$ $\boldsymbol{\gamma = 46.446°}$

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58. a=5, b=7, c=10.

a=5	**α =?**	$\alpha = \cos^{-1}\left(\frac{b^2+c^2-a^2}{2bc}\right)$	$\beta = \cos^{-1}\left(\frac{a^2+c^2-b^2}{2ac}\right)$	$\gamma = \cos^{-1}\left(\frac{a^2+b^2-c^2}{2ac}\right)$
b=7	**β=?**	$\alpha = \cos^{-1}\left(\frac{(5)^2+(10)^2-(5)^2}{2(7)(10)}\right)$	$\beta = \cos^{-1}\left(\frac{(5)^2+(10)^2-(7)^2}{2(5)(10)}\right)$	$\gamma = \cos^{-1}\left(\frac{(5)^2+(7)^2-(10)^2}{2(5)(10)}\right)$
c=10	**γ=?**	$\alpha = \cos^{-1}(0.886)$	$\beta = \cos^{-1}(0.76)$	$\gamma = \cos^{-1}(-0.371)$
		$\boldsymbol{\alpha = 27.67°}$	$\boldsymbol{\beta = 40.53°}$	$\boldsymbol{\gamma = 111.80°}$

59. a=3, b=4, c=5.

a=3	**α =?**	$\alpha = \cos^{-1}\left(\frac{b^2+c^2-a^2}{2bc}\right)$	$\beta = \cos^{-1}\left(\frac{a^2+c^2-b^2}{2ac}\right)$	$\gamma = \cos^{-1}\left(\frac{a^2+b^2-c^2}{2ac}\right)$
b=4	**β=?**	$\alpha = \cos^{-1}\left(\frac{(4)^2+(5)^2-(3)^2}{2(4)(5)}\right)$	$\beta = \cos^{-1}\left(\frac{(3)^2+(5)^2-(4)^2}{2(3)(5)}\right)$	$\gamma = \cos^{-1}\left(\frac{(3)^2+(4)^2-(5)^2}{2(3)(5)}\right)$
c=5	**γ=?**	$\alpha = \cos^{-1}(0.8)$	$\beta = \cos^{-1}(0.6)$	$\gamma = \cos^{-1}(0)$
		$\boldsymbol{\alpha = 36.87°}$	$\boldsymbol{\beta = 53.130°}$	$\boldsymbol{\gamma = 90°}$