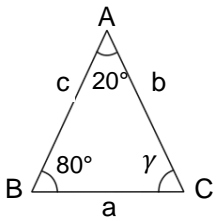


Tarea 4 Unidad 2

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

43. $\alpha = 80^\circ, \beta = 20^\circ, b = 7$



$\alpha = 80^\circ$	$a = ?$
$\beta = 20^\circ$	$b = 7$
$\gamma = ?$	$c = ?$

$$\frac{a}{\sin \alpha} = \frac{b}{\sin \beta}$$

$$a = \frac{b \sin \alpha}{\sin \beta}$$

$$a = \frac{7 \sin 80^\circ}{\sin 20^\circ}$$

$$a = \frac{6.893}{0.342}$$

$$a = 20.15$$

$$\gamma = 180^\circ - \alpha - \beta$$

$$\gamma = 180^\circ - 80^\circ - 20^\circ$$

$$\gamma = 80^\circ$$

$$\frac{b}{\sin \beta} = \frac{c}{\sin \gamma}$$

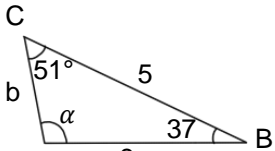
$$c = \frac{b \sin \gamma}{\sin \beta}$$

$$c = \frac{7 \sin 80^\circ}{\sin 20^\circ}$$

$$c = \frac{6.893}{0.342}$$

$$c = 20.15$$

44. $\beta = 37^\circ, \gamma = 51^\circ, a = 5$



$\alpha = ?^\circ$	$a = 5$
$\beta = 37^\circ$	$b = ?$
$\gamma = 51^\circ$	$c = ?$

$$\alpha = 180^\circ - \beta - \gamma$$

$$\alpha = 180^\circ - 37^\circ - 51^\circ$$

$$\alpha = 92^\circ$$

$$\frac{a}{\sin \alpha} = \frac{c}{\sin \gamma}$$

$$c = \frac{a \sin \gamma}{\sin \alpha}$$

$$c = \frac{5 \sin 51^\circ}{\sin 92^\circ}$$

$$c = \frac{3.885}{0.999}$$

$$c = 3.88$$

$$\frac{a}{\sin \alpha} = \frac{b}{\sin \beta}$$

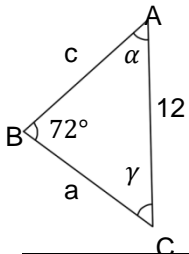
$$b = \frac{a \sin \beta}{\sin \alpha}$$

$$b = \frac{5 \sin 37^\circ}{\sin 92^\circ}$$

$$b = \frac{3.009}{0.999}$$

$$b = 3.01$$

45. $\beta = 72^\circ, b = 12, c = 6$



$\alpha = ?$	$a = ?$
$\beta = 72^\circ$	$b = 12$
$\gamma = ?$	$c = 6$

$$\frac{b}{\sin \beta} = \frac{c}{\sin \gamma}$$

$$\sin \gamma = \frac{c \sin \beta}{b}$$

$$\sin \gamma = \frac{6 \sin 72^\circ}{12}$$

$$\sin \gamma = \frac{5.7}{12}$$

$$\sin \gamma = 0.475$$

$$\gamma = \sin^{-1} 0.475$$

$$\gamma = 28.35^\circ$$

$$\alpha = 180^\circ - \beta - \gamma$$

$$\alpha = 180^\circ - 72^\circ - 28.35^\circ$$

$$\alpha = 79.65^\circ$$

$$\frac{a}{\sin \alpha} = \frac{c}{\sin \gamma}$$

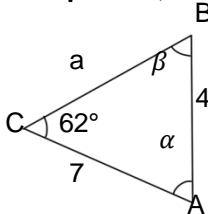
$$a = \frac{c \sin \alpha}{\sin \gamma}$$

$$a = \frac{6 \sin 79.65^\circ}{\sin 28.35^\circ}$$

$$a = \frac{5.902}{0.474}$$

$$a = 12.412$$

46. $\gamma = 62^\circ, b = 7, c = 4$



$\alpha = ?$	$a = ?$
$\beta = ?$	$b = 7$
$\gamma = 62^\circ$	$c = 4$

$$\frac{b}{\sin \beta} = \frac{c}{\sin \gamma}$$

$$\sin \beta = \frac{b \sin \gamma}{c}$$

$$\sin \beta = \frac{7 \sin 62^\circ}{4}$$

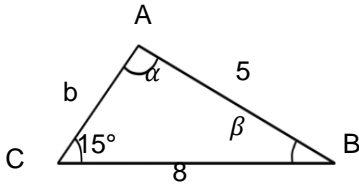
$$\sin \beta = \frac{6.18}{4}$$

$$\sin \beta = 1.45$$

EL TRIÁNGULO NO EXISTE.
No se puede convertir a grados.

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47. $\gamma = 15^\circ$, $a = 8$, $c = 5$



$\alpha = ?$	$a = 8$
$\beta = ?$	$b = ?$
$\gamma = 15^\circ$	$c = 5$

$$\frac{a}{\sin \alpha} = \frac{c}{\sin \gamma}$$

$$\sin \alpha = \frac{c}{a \sin \gamma}$$

$$\sin \alpha = \frac{5}{8 \sin 15^\circ}$$

$$\sin \alpha = \frac{2.07}{5}$$

$$\sin \alpha = 0.414$$

$$\alpha = \sin^{-1} 0.414$$

$$\alpha = 24.45^\circ$$

$$\beta = 180^\circ - \alpha - \gamma$$

$$\beta = 180^\circ - 24.45^\circ - 15^\circ$$

$$\beta = 140.54^\circ$$

$$\frac{a}{\sin \alpha} = \frac{b}{\sin \beta}$$

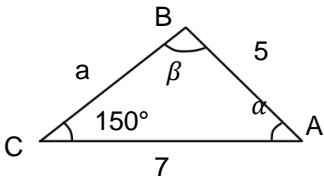
$$b = \frac{a \sin \beta}{\sin \alpha}$$

$$b = \frac{8 \sin 140.54^\circ}{\sin 24.45^\circ}$$

$$b = \frac{5.08}{0.414}$$

$$b = 12.278$$

48. $\gamma = 150^\circ$, $b = 7$, $c = 5$



$\alpha = ?$	$a = ?$
$\beta = ?$	$b = 7$
$\gamma = 150^\circ$	$c = 5$

$$\frac{b}{\sin \beta} = \frac{c}{\sin \gamma}$$

$$\sin \beta = \frac{b \sin \gamma}{c}$$

$$\sin \beta = \frac{7 \sin 150^\circ}{5}$$

$$\sin \beta = \frac{3.5}{5}$$

$$\sin \beta = 0.7$$

$$\beta = \sin^{-1} 0.7$$

$$\beta = 44.42^\circ$$

EL TRIÁNGULO NO EXISTE.
 β y γ Sumados dan más de 180°