
For a triangle with vertices $A, B, C$. The opposite sides have length $a, b, c$,

The Law of Cosines says:

$$c^2 = a^2 + b^2 - 2ab \cos(C)$$

The Law of Sines says:

$$\frac{\sin(A)}{a} = \frac{\sin(B)}{b} = \frac{\sin(C)}{c}$$

Suppose that a triangle has vertices $X, Y, Z$ and the opposite sides have length $x, y, z$.

#1: Given $x, y, z$, find $X, Y, Z$. (Give formulas for each.)

#2: Given $x, y, Z$, find $X, Y, z$. (Give formulas for each.)

#3: Given $x, y, X$, find $Y, Z, z$. (Give formulas for each.)

#4: Given $X, Y, z$, find $x, y, Z$. (Give formulas for each.)

#5: Given $X, Y, x$, find $y, z, Z$. (Give formulas for each.)