Solving Trigonometric Equations

$\sin x = a$ → If $|a| > 1$, no solution. Otherwise, $x = \arcsin a + 360°k$ and $x = 180° - \arcsin a + 360°k$

$\cos x = a$ → If $|a| > 1$, no solution. Otherwise, $x = \arccos a + 360°k$ and $x = -\arccos a + 360°k$

$\tan x = a$ → $x = \arctan a + 180°k$

$\cot x = a$ → $x = \operatorname{arccot} a + 180°k$

* *k is an integer.*

Radians

x radians $= \left(\frac{180 \cdot x}{\pi}\right)^{\circ}$	$x^{\circ} = \left(\frac{\pi \cdot x}{180}\right)$ radians

The Law of Cosines

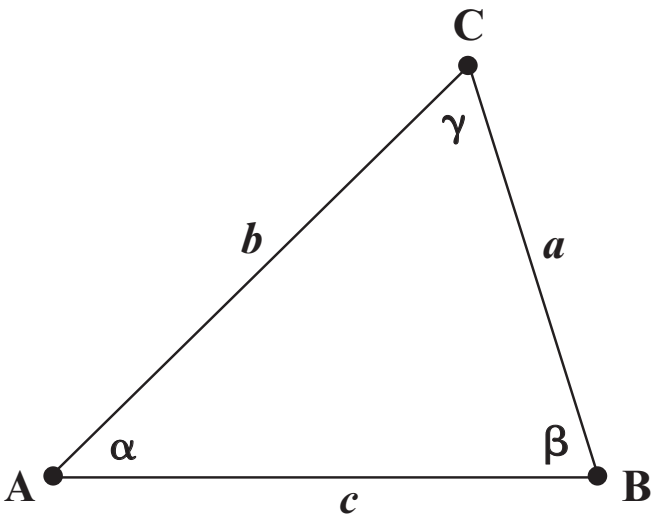
$a^2 = b^2 + c^2 - 2bc\cos\alpha$

$b^2 = a^2 + c^2 - 2ac\cos\beta$

$c^2 = a^2 + b^2 - 2ab\cos\gamma$

The Law of Sines

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



Area of a Triangle

Area of $\Delta ABC = \frac{1}{2}bc\sin\alpha = \frac{1}{2}ac\sin\beta = \frac{1}{2}ab\sin\gamma$

Exercises

1. TRUE OR FALSE?

1. **T** or **F** All periodic functions are one-to-one.

2. **T** or **F** Positive angles are measured clockwise.

3. **T** or **F** As the angle increases, the sine function increases.