Introduction to Trigonometry with Applications

RIGHT ANGLE TRIANGLE

PROFESSOR PANOS S. SHIAKOLAS
MECHANICAL AND AEROSPACE ENGINEERING DEPARTMENT
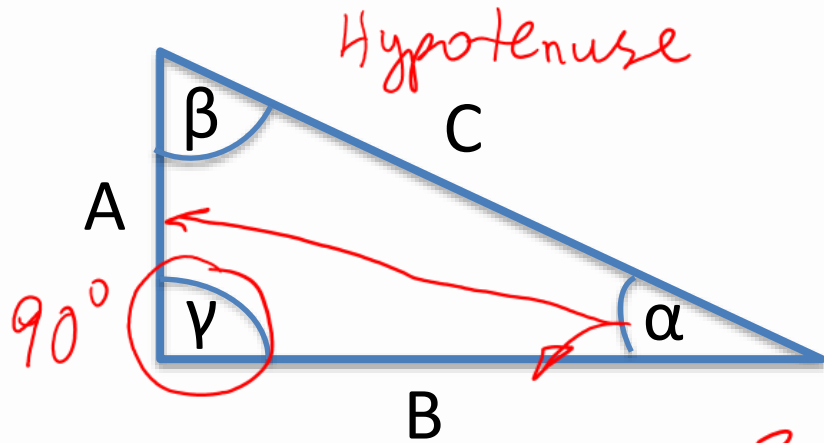COLLEGE OF ENGINEERING
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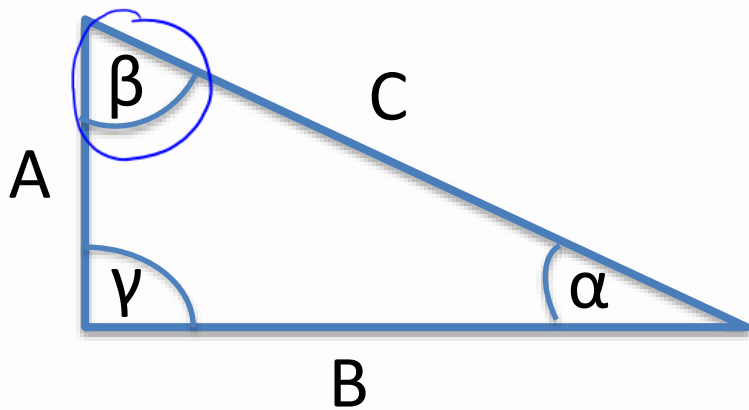
Right Angle Triangle

Hypotenuse

C

β

A

90^0

γ

α

B

$sin(angle) = \dfrac{Opposite\ Perpendicular}{Hypotenuse}$

$cos(angle) = \dfrac{Near\ Perpendicular}{Hypotenuse}$

$sin(\alpha) = \dfrac{A}{C}$ $cos(\alpha) = \dfrac{B}{C}$

$sin(0^0) = 0$ $sin(90^0) = 1$

$cos(0^0) = 1$ $cos(90^0) = 0$

Right Angle Triangle

$$\cos^2(\alpha) + \sin^2(\alpha) = \underset{?}{\underline{1}}$$

$$\left(\frac{B}{C}\right)^2 + \left(\frac{A}{C}\right)^2 = 1$$

$$\frac{B^2}{C^2} + \frac{A^2}{C^2} = 1$$

$$\frac{B^2 + A^2}{C^2} = 1 \Rightarrow B^2 + A^2 = C^2 \quad \longleftarrow \text{Pythagorean Theorem}$$