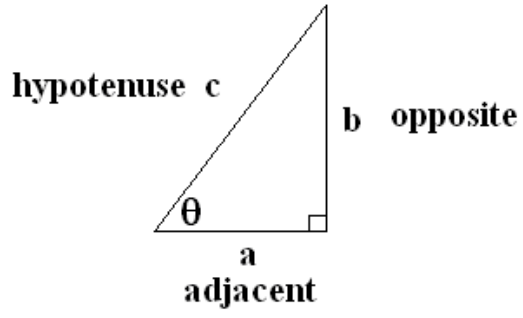
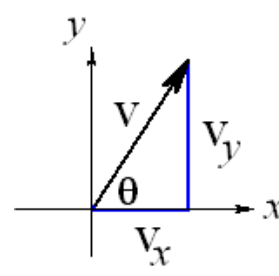


Basic Mathematics – Chapter 1

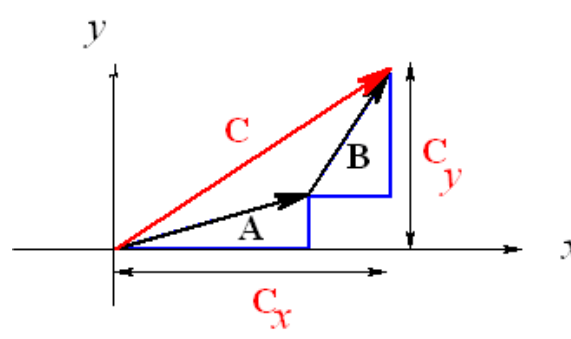
Trigonometric Functions

	Pythagorean Theorem: $a^2 + b^2 = c^2$ Trigonometric Functions: $\sin \theta = \frac{\text{opp}}{\text{hyp}}$ $\cos \theta = \frac{\text{adj}}{\text{hyp}}$ $\tan \theta = \frac{\text{opp}}{\text{adj}} = \frac{\sin \theta}{\cos \theta}$
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Vectors

	Vector Components: $V_x = V \cos \theta$ $V_y = V \sin \theta$ Magnitude and Direction: $V = \sqrt{V_x^2 + V_y^2}$ $\tan \theta = \frac{V_y}{V_x}$
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Vector Addition

	Adding Vectors: $A + B = C$ 1. Add all x-components: $A_x + B_x = C_x$ 2. Add all y-components: $A_y + B_y = C_y$ 3. Find the magnitude and direction of the sum: $C = \sqrt{C_x^2 + C_y^2}, \quad \tan \theta = \frac{C_y}{C_x}$
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