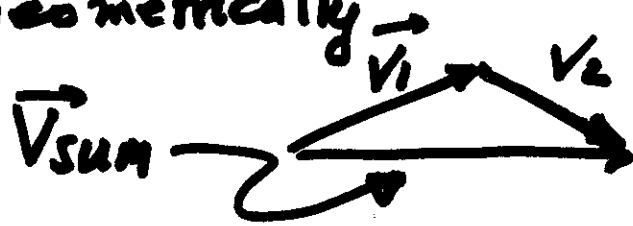


Addition of Vectors



(a) Geometrically



(b) by Components



(1) Choose (x, y) axes

(2) Decompose V_1 into components: $\vec{V}_1 = (V_{1x}, V_{1y})$
where $V_{1x} = |V_1| \cos \theta$, $V_{1y} = |V_1| \sin \theta$

(3) Decompose V_2 into $\vec{V}_2 = (V_2 \cos \theta_2, V_2 \sin \theta_2)$
 $= (V_{2x}, V_{2y})$

(4) Then ^{Vector} sum of any 2 vectors has components equal to sum of their corresponding components

$$\vec{V}_{sum} = (V_{sum,x}, V_{sum,y}) \\ = (V_{1x} + V_{2x}, V_{1y} + V_{2y})$$

(5) Finally: Any 2D Vector Eqn must be considered as 2 copies of Equation, for x & y:

$$\vec{F} = m \vec{a} \iff \begin{cases} F_x = m a_x \\ F_y = m a_y \end{cases}$$