University Physics with Modern Physics, 15/e
Young/Freedman
Chapter 1 Key Equations

$$R_x = A_x + B_x, \qquad R_y = A_y + B_y \quad \text{(component of } \vec{R} = \vec{A} + \vec{B},\ \vec{A} \text{ and } \vec{B}\text{)} \tag{1.9}$$

$$\begin{aligned} \vec{\boldsymbol{A}} &= A_x\hat{\boldsymbol{\imath}} + A_y\hat{\boldsymbol{\jmath}} + A_z\hat{\boldsymbol{k}} \\ \vec{\boldsymbol{B}} &= B_x\hat{\boldsymbol{\imath}} + B_y\hat{\boldsymbol{\jmath}} + B_z\hat{\boldsymbol{k}} \quad (\hat{k}) \end{aligned} \tag{1.14}$$

$$\vec{\boldsymbol{A}} \cdot \vec{\boldsymbol{B}} = AB\cos\phi = \left|\vec{\boldsymbol{A}}\right|\left|\vec{\boldsymbol{B}}\right|\cos\phi \quad \text{(Scalar (dot) product, } \vec{A}, \vec{B}\text{)} \tag{1.16}$$

$$\vec{\boldsymbol{A}} \cdot \vec{\boldsymbol{B}} = A_xB_x + A_yB_y + A_zB_z \quad \text{(Scalar (dot) product, } \vec{A}, \vec{B}\text{)} \tag{1.19}$$

$$C = AB\sin\phi \quad \text{(vector (cross) product, } \vec{A}, \vec{B}\text{)} \tag{1.20}$$

$$C_x = A_yB_z - A_zB_y \quad C_y = A_zB_x - A_xB_z \quad C_z = A_xB_y - A_yB_x \ \text{(Components of vector (cross) product } \vec{A}\times\vec{B}\text{)} \tag{1.25}$$