Dot Product

The dot product of two vectors u and v is denoted by $u \cdot v$.

$$\vec{u} = \langle u_1, u_2, u_3 \rangle, \vec{v} = \langle v_1, v_2, v_3 \rangle$$

$$u \cdot v = u_1 v_1 + u_2 v_2 + u_3 v_3$$

The Angle Between Two Vectors u and v is,

$$\theta = \cos^{-1} \left(\frac{\vec{u} \cdot \vec{u}}{||\vec{u}|| \; ||\vec{v}||} \right)$$