



Diagram illustrating the dot product of vectors  $\bar{A}$  and  $\bar{B}$ , and its expansion into the sum of the dot products of their components. The angle between the vectors is labeled  $\theta$ .

$$\bar{A} \cdot \bar{B} = \bar{A}_x \cdot \bar{B}_x + \underbrace{\bar{A}_x \cdot \bar{B}_y}_{=0} + \underbrace{\bar{A}_y \cdot \bar{B}_x}_{=0} + \bar{A}_y \cdot \bar{B}_y$$