

$$|BC| = |BA| \cos(\alpha)$$

$$= |BA| \cdot \frac{\hat{n} \cdot \overline{BA}}{|BA|} = \hat{n} \cdot \overline{BA}$$

$$BD = \frac{BC}{\cos \theta} = \frac{\hat{k} \cdot \hat{n}}{\hat{n} \cdot \hat{k}} = \frac{\hat{n} \cdot \overline{BA}}{\hat{n} \cdot \hat{k}}$$

