

1) Find $|a|$ if $a \cdot b = 50$, $|b| = 20$, and $\theta = \frac{\pi}{3}$

The formula for the dot product of the vectors **a** and **b** is

$$a \cdot b = |a| |b| \cos \theta$$

$$50 = |a| 20 \cos \frac{\pi}{3}$$

$$50 = |a| 20 \left(\frac{1}{2}\right)$$

$$50 = |a| 10$$

$$\underline{|a| = 5}$$