

SOLUCIONES

VIDEO: ÁNGULO ENTRE DOS VECTORES

1. Halla el ángulo de los siguientes vectores:

$$\vec{u} = (3, 0) \quad \vec{v} = (5, 5)$$

$$\cos \alpha = \frac{\mathbf{u} \cdot \mathbf{v}}{|\mathbf{u}| \cdot |\mathbf{v}|} = \frac{(3 \cdot 5) + (0 \cdot 5)}{3 \cdot \sqrt{50}} = \frac{15 + 0}{3 \cdot 7,07} = \frac{15}{21,21} = 0,70$$

$$\alpha = \cos^{-1} 0,70 = 45^\circ$$

$$|\mathbf{u}| = \sqrt{3^2 + 0^2} = \sqrt{9} = 3$$

$$|\mathbf{v}| = \sqrt{5^2 + 5^2} = \sqrt{25 + 25} = \sqrt{50}$$

$$\vec{u} = (5, 6) \quad \vec{v} = (-1, 4)$$

$$\cos \alpha = \frac{\mathbf{u} \cdot \mathbf{v}}{|\mathbf{u}| \cdot |\mathbf{v}|} = \frac{(5 \cdot -1) + (6 \cdot 4)}{\sqrt{61} \cdot \sqrt{17}} = \frac{-5 + 24}{7,81 \cdot 4,12} = \frac{19}{32,20} = 0,59$$

$$\alpha = \cos^{-1} 0,59 = 53^\circ$$

$$|\mathbf{u}| = \sqrt{5^2 + 6^2} = \sqrt{25 + 36} = \sqrt{61}$$

$$|\mathbf{v}| = \sqrt{-1^2 + 4^2} = \sqrt{1 + 16} = \sqrt{17}$$

$$\vec{u} = (3, 5) \quad \vec{v} = (-1, 6)$$

$$\cos \alpha = \frac{\mathbf{u} \cdot \mathbf{v}}{|\mathbf{u}| \cdot |\mathbf{v}|} = \frac{(3 \cdot -1) + (5 \cdot 6)}{\sqrt{34} \cdot \sqrt{37}} = \frac{-3 + 30}{5,83 \cdot 6,08} = \frac{27}{35,46} = 0,76$$

$$\alpha = \cos^{-1} 0,76 = 40^\circ$$

$$|\mathbf{u}| = \sqrt{3^2 + 5^2} = \sqrt{9 + 25} = \sqrt{34}$$

$$|\mathbf{v}| = \sqrt{-1^2 + 6^2} = \sqrt{1 + 36} = \sqrt{37}$$