$$\cos(\vec{u}\,\hat{}\,\vec{v}) = \frac{\vec{u}\cdot\vec{v}}{|\vec{u}||\vec{v}|} = \frac{11}{5\sqrt{5}}$$

$|\vec{u}| = \sqrt{1^2+2^2} = \sqrt{1+4} = \sqrt{5}$

$|\vec{v}| = \sqrt{3^2+4^2} = \sqrt{9+16} = \sqrt{25} = 5$

c) $\vec{u}\,\hat{}\,\vec{v} = \arccos\left(\frac{11}{5\sqrt{5}}\right) \simeq \begin{cases} 10,30^\circ \\ \text{ó} \\ 349,70^\circ \end{cases}$ Agafem el més petit.

$\hat{u}\hat{v} = 10,30^\circ$

16. $\vec{u}(3,-4)$ $\vec{v}(5,6)$

a) $|\vec{u}| = \sqrt{3^2+(-4)^2} = \sqrt{9+16} = \sqrt{25} = 5$

$|\vec{v}| = \sqrt{5^2+6^2} = \sqrt{25+36} = \sqrt{61}$

b) $\vec{u}\,\hat{}\,\vec{v} = ?$

$\vec{u}\cdot\vec{v} = |\vec{u}||\vec{v}|\cos(\vec{u}\,\hat{}\,\vec{v})$ per tant:

$$\cos(\vec{u}\,\hat{}\,\vec{v}) = \frac{\vec{u}\cdot\vec{v}}{|\vec{u}||\vec{v}|} = \frac{-9}{5\sqrt{61}}$$

$\vec{u}\cdot\vec{v} = (3,-4)(5,6) = 15-24 = -9$

$\vec{u}\,\hat{}\,\vec{v} = \arccos\left(\frac{-9}{5\sqrt{61}}\right) \simeq \begin{cases} 103,32^\circ \\ 256,68^\circ \end{cases}$ Agafem el més petit

No el considerem.

c) $\frac{\vec{u}}{|\vec{u}|}$

d) $\vec{u} \perp \vec{v}$ perquè $\vec{u}\cdot\vec{v} = 0$

$(4,3)$ és perpendicular a $\vec{u}$ ja que $(3,-4)\cdot(4,3) = 12-12 = 0$