## Answer on quaestion 42413 - Math - Analytic Geometry

Find the angle between the given vectors to the nearest tenth of a degree.
u = <6, -1>, v = <7, -4>
Let $\alpha$ - the angle beetween u and v . Then by wellknown formula

$$cos(\alpha) = \frac{u \cdot v}{|u||v|}$$

But

$$|u| = \sqrt{u_1^2 + u_2^2} = \sqrt{6^2 + (-1)^2} = \sqrt{37}$$

$$|v| = \sqrt{v_1^2 + v_2^2} = \sqrt{7^2 + (-4)^2} = \sqrt{65}$$

$$u \cdot v = u_1 * v_1 + u_2 * v_2 = 6 * 7 + (-1) * (-4) = 46$$

So

$$cos(\alpha) = \frac{46}{\sqrt{37 * 65}}$$

$$\alpha = arccos(\frac{46}{\sqrt{37 * 65}})$$

Then $\alpha$ aproximately equal to 20.3 degree