

$$\vec{a} \parallel \vec{b}$$

$$\vec{a} \perp \vec{b}$$

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$$\alpha = 30^\circ$$

$$\beta = 120^\circ$$

$$\vec{a} \parallel \vec{b}$$

$$\vec{a} \perp \vec{b}$$

$$\vec{a} \perp \vec{b}$$

$$5) \vec{a} \cdot \vec{b} = a^2 = a^2$$

$$7) \vec{a} \cdot \vec{c} = a \cdot (-a) = -a^2 = -a^2$$

$$3) \vec{a} - \vec{a} = a d \cos \frac{\pi}{2} = 0$$

$$4) \vec{a} \cdot \vec{c} = ac \cos \alpha = \frac{\sqrt{3}}{2} a^2$$

$$2) \vec{a} \cdot \vec{y} = a^2 \cos \beta = -0,5 a^2$$

En. 9 pag 134

Dati:

$$|\vec{a}| = 5,0$$

$$|\vec{b}| = 8,0$$

$$\vec{a} \cdot \vec{b} = 20\sqrt{2}$$

$$\alpha = ?$$

$$\vec{a} \cdot \vec{b} = ab \cos \alpha$$

$$\cos \alpha = \frac{\vec{a} \cdot \vec{b}}{ab} = \frac{20\sqrt{2}}{5,0 \cdot 8,0} = \frac{20\sqrt{2}}{40}$$

$$= \frac{\sqrt{2}}{2}$$

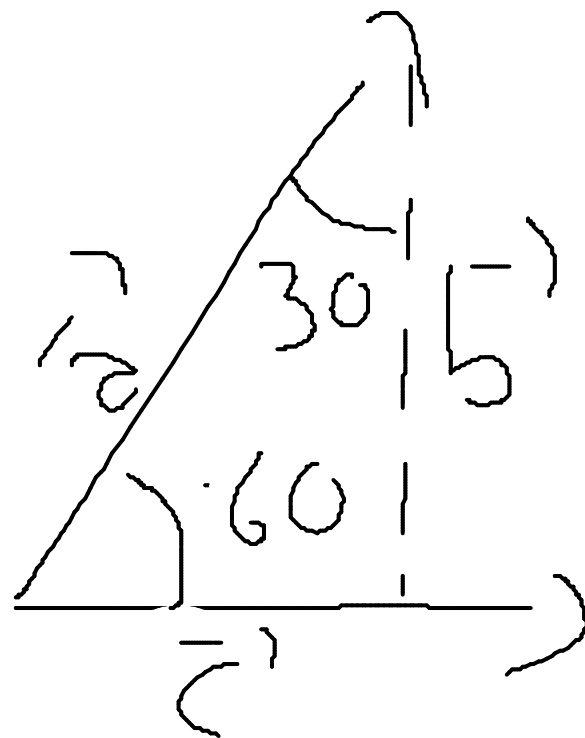
$$\alpha = 45^\circ$$

Qst 1:

$$|\vec{a}| = 10$$

$$c = 50$$

$$\alpha = ?$$



$$\alpha = 30^\circ$$

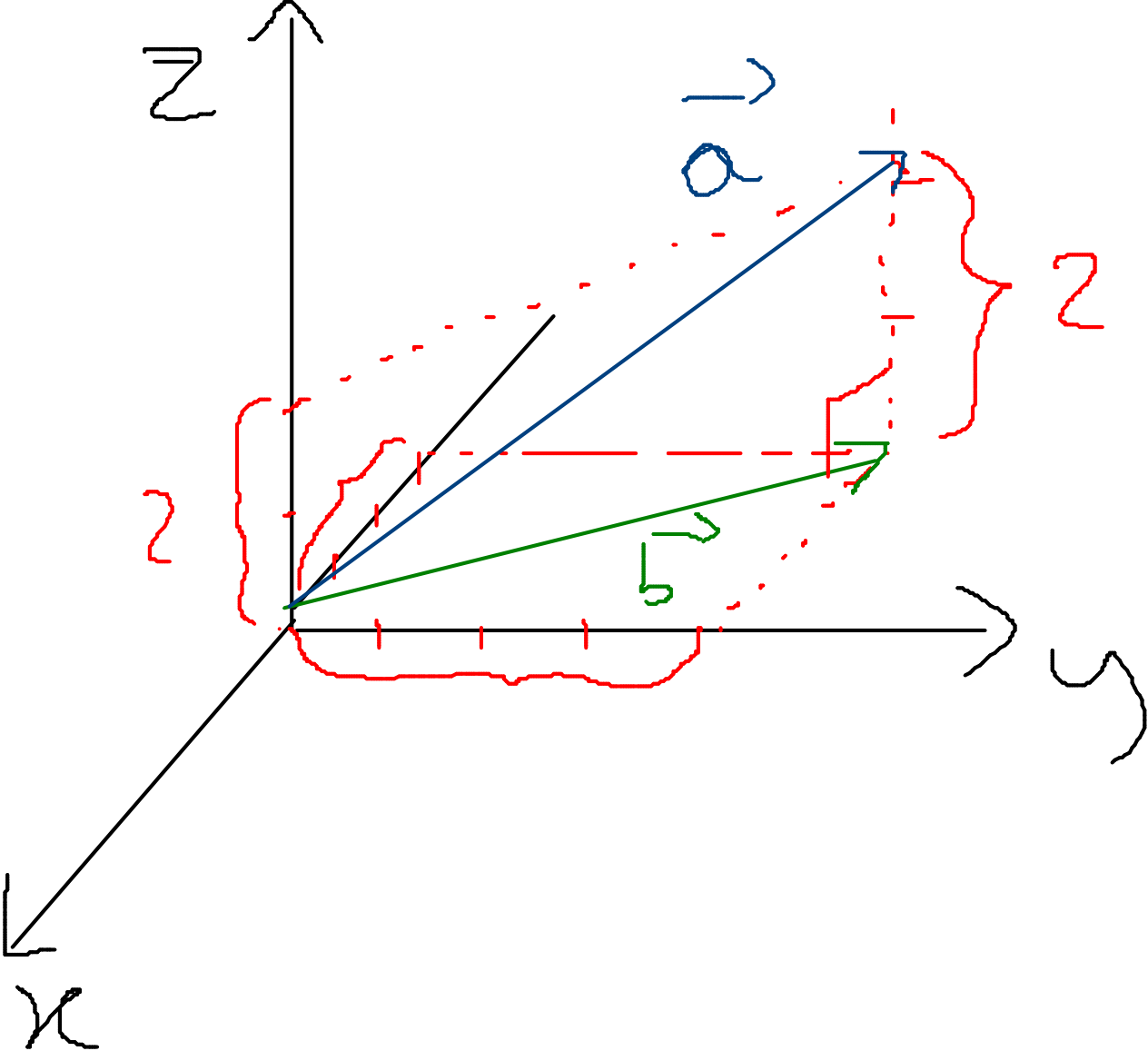
$$\begin{aligned} |\vec{b}| &= \sqrt{a^2 - c^2} = \sqrt{100 - 25} \\ &= \sqrt{75} = 5\sqrt{3} \end{aligned}$$

$$\begin{aligned} |\vec{a} \times \vec{b}| &= ab \sin \alpha \\ &= 10 \cdot 5\sqrt{3} \cdot \frac{1}{2} \\ &= 25\sqrt{3} \end{aligned}$$

$$\vec{a} = -3\hat{x} + 4\hat{y} + 2\hat{z}$$

$$\vec{b} = -3\hat{x} + 4\hat{y}$$

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



$$a_x = -3$$

$$a_y = 4$$

$$a_z = 2$$

$$a = \sqrt{b^2 + a_z^2}$$

Esami pag 137 n 32, 33

" 134 n 12, 13



1) $\vec{a} \equiv (10, -10)$ $\vec{b} \equiv (0, -5)$

Calcolare: a) prodotto scalare

b) " vettoriale

con le definizioni e per componenti

2) Trovare l'angolo tra i vettori $\vec{v} \equiv (1, 2)$; $\vec{w} \equiv (-2, 3)$