

- 9) $P(5, -2)$ punt mitjà del segment \overline{AB} .
 $A(2, 3)$. $B(b_1, b_2) = ?$

$$5 = \frac{2 + b_1}{2} \quad i \quad -2 = \frac{3 + b_2}{2}$$

És a dir:

$$10 = 2 + b_1 \Leftrightarrow b_1 = 8$$

$$-4 = 3 + b_2 \Leftrightarrow b_2 = -7$$

Per tant: $B(8, -7)$

- 13) a) $|\vec{a}| = 5$, $|\vec{b}| = 3$, $\widehat{\vec{a}, \vec{b}} = 60^\circ$
 $\vec{a} \cdot \vec{b} = |\vec{a}| \cdot |\vec{b}| \cos(\widehat{\vec{a}, \vec{b}}) = 5 \cdot 3 \cdot \cos 60^\circ =$
 $= 15 \cdot \frac{1}{2} = \frac{15}{2}$

b) $|\vec{a}| = 9$, $|\vec{b}| = 1$, $\widehat{\vec{a}, \vec{b}} = 135^\circ$
 $\vec{a} \cdot \vec{b} = |\vec{a}| |\vec{b}| \cos(\widehat{\vec{a}, \vec{b}}) = 9 \cdot 1 \cos(135^\circ) =$
 $= 9 \cdot \left(-\frac{\sqrt{2}}{2}\right) = -\frac{9\sqrt{2}}{2}$

c) $\vec{u}^2 = \vec{u} \cdot \vec{u} = |\vec{u}| |\vec{u}| \cos(0^\circ) = |\vec{u}|^2$

- 14) $m = ?$ $\vec{a}(4, -3)$ $\vec{b}(m, 2)$
 $\vec{a} \cdot \vec{b} = 4 \Leftrightarrow \cancel{4m - 6} (4, -3) \cdot (m, 2) = 4 \Leftrightarrow$
 $\Leftrightarrow 4m - 6 = 4 \Leftrightarrow 4m = 10 \Leftrightarrow m = \frac{10}{4} \Leftrightarrow$
 $\Leftrightarrow m = \frac{5}{2}$

- 15) $\vec{u}(1, 2)$ $\vec{v}(3, 4)$

a) $\vec{u} \cdot \vec{v} = (1, 2) \cdot (3, 4) = 3 + 8 = 11$

b) $\cos(\widehat{\vec{u}, \vec{v}}) = ?$

$$\vec{u} \cdot \vec{v} = |\vec{u}| \cdot |\vec{v}| \cos(\widehat{\vec{u}, \vec{v}})$$