Aula 5

MsF

1) $\vec{u} = (3;4)$

a) Intensidade $= \sqrt{3^2+4^2} = \sqrt{25} = 5$

b) Vetor $= \left(\frac{3}{5};\frac{4}{5}\right)$ $\quad \|\vec{v}\| = \sqrt{\left(\frac{3}{5}\right)^2+\left(\frac{4}{5}\right)^2} = 1$

c) $2 \times (3;4) = (6;8)$ $\quad \|(6;8)\| = \sqrt{6^2+8^2} = 10$

2) $\theta = \arccos\left(4 / \left(\sqrt{5} \times \sqrt{13}\right)\right) = \arccos(4/8,062) \simeq 60,25$

produto escalar $= 4$

3) $(1;2) \cdot (-2;1) = -2+2 = 0$

$\|(1;2)\| = \sqrt{5}$ $\quad \|(-2;1)\| = \sqrt{5}$

$\cos(\theta) = \frac{0}{\sqrt{5} \times \sqrt{5}} = 1 \Rightarrow \theta = 90^\circ$

4) $(-4;3)$

5) $m = 2,0\ kg$ $\quad F_1 = (2,0;1,2)\ N$; $F_2 = (-3,0;5,1)\ N$

$F_R = (-1,0;6;3) = 6,379\ N$

6) $F = 6,0\ N$ $\quad F = \sqrt{F_x^2+F_y^2}$

$\Leftrightarrow 6,0 = \sqrt{2^2+F_y^2} \Leftrightarrow 36 = 4+F_y^2 \Leftrightarrow F_y = \sqrt{32} \Leftrightarrow F_y = 5,66$

7) $F_x = 2,0\ N$ $\quad \theta = 60^\circ$

$\cos\theta = \frac{F_x}{F}$

$\Leftrightarrow F = \frac{F_x}{\cos(60)} \Leftrightarrow F = 4\ N$