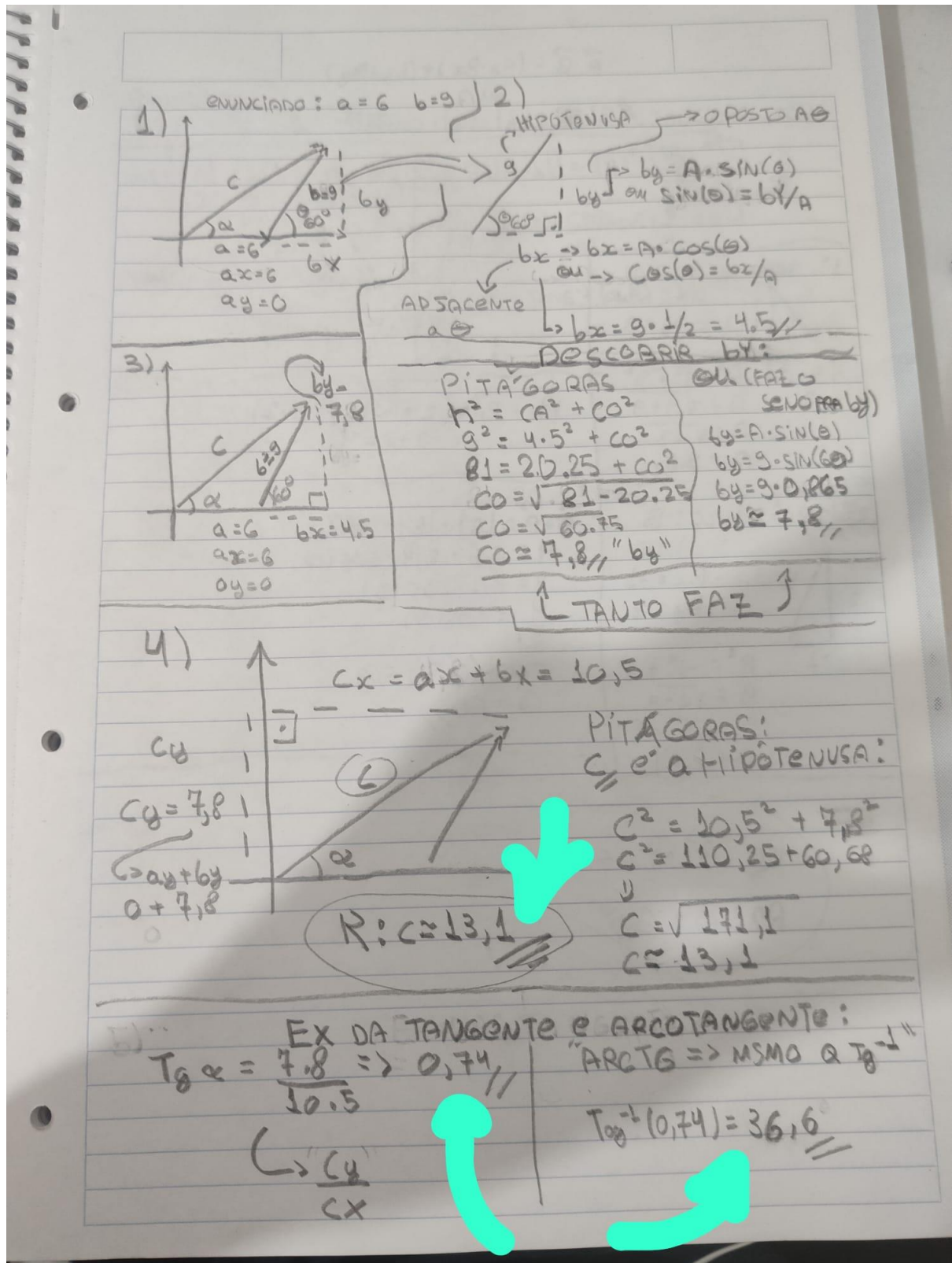


João Neto, a22200558, turma 1

Exercício 1:



Exercício 2:

$$\vec{A} \cdot \vec{B} = (A_x \cdot B_x) + (A_y \cdot B_y)$$

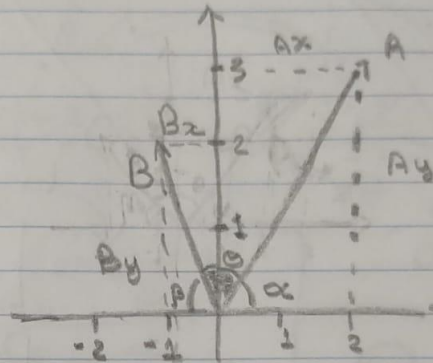
ou

$$\text{DOT PRODUCT: } \vec{A} \cdot \vec{B} = |\vec{A}| \cdot |\vec{B}| \cdot \cos(\theta)$$

$$\vec{A} = 2\hat{i} + 3\hat{j}$$

$$\vec{B} = -1\hat{i} + 2\hat{j}$$

$$\hookrightarrow B_x \hookrightarrow B_y$$



1º TRIÂNGULO: A

$$\begin{aligned} A_x &= 2 \\ A_y &= 3 \\ A^2 &= 2^2 + 3^2 \\ A &= \sqrt{4+9} \\ A &= \sqrt{13} \\ A &= 3.6 \end{aligned}$$

2º TRIÂNGULO: B

$$\begin{aligned} B_x &= -1 \\ B_y &= 2 \\ B^2 &= (-1)^2 + 2^2 \\ B &= \sqrt{1+4} \\ B &= \sqrt{5} \\ B &= 2.24 \end{aligned}$$

$$\begin{aligned} \vec{A} \cdot \vec{B} &= (2 \cdot (-1)) + (3 \cdot 2) \\ &= -2 + 6 = 4 \end{aligned}$$

$$\vec{A} \cdot \vec{B} = |\vec{A}| \cdot |\vec{B}| \cdot \cos(\theta)$$

$$4 = 3.6 \cdot 2.24 \cdot \cos(\theta)$$

$$4 = 8.1 \cdot \cos(\theta)$$

$$\frac{4}{8.1} = \cos(\theta)$$

$$\frac{4}{8.1}$$

$$\cos^{-1}(0.5) = \theta$$

$$\theta = 60^\circ$$

$$R1: \vec{A} \cdot \vec{B} = 4$$

$$R2: \theta = 60^\circ$$