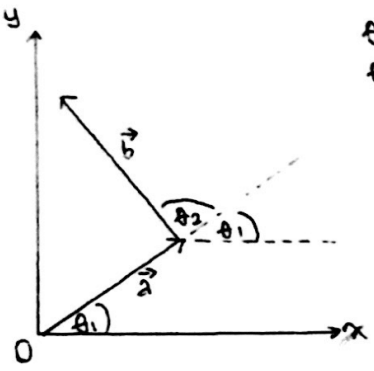
Yohandi - Assignment 2

15.



$\theta_1 = 30°$

$\theta_2 + \theta_1 = 105° + 30° = 135°$

a. $\Sigma x = \vec{a}x + \vec{b}x = 10 \cdot \cos 30° + 10 \cdot \cos 135° = 5(\sqrt{3} - \sqrt{2}) \approx \boxed{1,59m}$

b $\Sigma y = \vec{a}y + \vec{b}y = 10 \cdot \sin 30° + 10 \cdot \sin 135° = 5(1 + \sqrt{2}) \approx \boxed{12,1m}$

c. $r = \sqrt{rx^2 + ry^2} = \sqrt{(5(\sqrt{3} - \sqrt{2}))^2 + (5(1+\sqrt{2}))^2} \approx \boxed{12,2\ m}$

d $\tan \alpha = \frac{\Delta y}{\Delta x}$

$\alpha = \tan^{-1}\left(\frac{\Delta y}{\Delta x}\right)$

$\alpha = \tan^{-1}\left(\frac{12,1}{1,59}\right)$

$\boxed{\alpha = 82,5°}$

24. $Ax = x\ m$

$Ay = 0$

$B = 60m$

$Cx = 0$

$Cy = 3x\ m$

$Ax + Bx = Cx \quad ...(1)$

$Ay + By = Cy \quad ...(2)$

$\sqrt{Bx^2 + By^2} = 6\ m \quad ...(3)$

from (1) & (2):

$-xm + Bx = 0 \quad \times 3$

$0 + By = 3x\ m \quad \times 1$

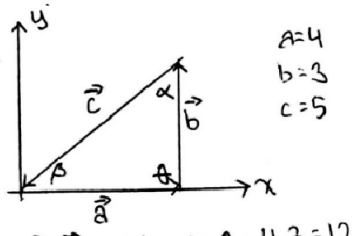
$3Bx = -By$

$\sqrt{Bx^2 + (-3Bx)^2} = 6$

$\sqrt{10}\ Bx = 6$

$Bx = \frac{6}{\sqrt{10}} \approx \boxed{1,9m = Ax = A}$

33.



$a = 4$

$b = 3$

$c = 5$

a. $\vec{a} \times \vec{b} = a \cdot b \cdot \sin\theta = 4 \cdot 3 = 12$

b. ⊙ out of page

c. $\vec{a} \times \vec{c} = a \cdot c \cdot \sin\beta = 4 \cdot 5 \cdot \frac{3}{5} = 12$

d. ⊗ into page

e. $\vec{b} \times \vec{c} = b \cdot c \cdot \sin\alpha = 3 \cdot 5 \cdot \frac{4}{5} = 12$

f. ⊙ out of page