UNIVERSIDAD CENFOTEC

VICERRECTORÍA DE DOCENCIA

ESCUELA DE INGENIERIA DEL SOFTWARE

BACHILLERATO EN INGENIERÍA DEL SOFTWARE

Practica 1

MODALIDAD: Pracitca

ESTUDIANTES

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Practica #1

1)

a) 299 792 458 m/s → Km/h

$$299,792,458\ m/s \cdot \frac{1\ Km}{1000\ m} \cdot \frac{3600\ s}{1\ h}$$

R// 1,079,252,848 Km/h

b) 80 mi/h → m/s

1 mi = 1609,34 m.

$$80\ mi/h \cdot \frac{1609,34\ m}{1\ mi} \cdot \frac{1\ h}{3600\ s}$$

R// 35,76 m/s

c) 225 lb → kg

1 lb → 0,453592 kg

225 lb · 0.453592 = **102.06 kg**

d) 200 m → Yardas

200 m · 100 cm/m = 20,000 cm

$$20000\,cm \cdot \frac{1\,pulgada}{2,54\,cm} = 7.874\ pulgadas$$

$$7,874 \cdot \frac{1\,yarda}{36\,pulgad} = \mathbf{218.72\ yardas}$$

e) $10{,}000\ m^2 \rightarrow km^2$

$1\ km^2 = 10^6\ m^2$

$$10.000\ m^2 \cdot \frac{1\ km^2}{10^6\ m^2} = \boxed{0{,}01\ km^2}$$

f) $750\ mL \rightarrow m^3$

$1\ mL = 10^{-6}\ m^3$

$750\ mL \cdot 10^{-6}\ m^3/mL = 0{,}00075\ m^3$

2)

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

$\vec{B} = 5i - 1j$

a)

i) $\vec{C} = \vec{A} + \vec{B}$

$\vec{C} = (2+5)i + (3+(-1))j$

$\vec{C} = 7i + 2j$

$|C| = \sqrt{7^2+2^2} = \sqrt{49+4} = \sqrt{53} = 7,28$

$\theta = \tan^{-1}\left(\frac{2}{7}\right)$

$\theta = \tan^{-1}(0,2857) = 15,89°$

ii) $\vec{C} = \vec{B} - \vec{A}$

$\vec{C} = (5-2)i + (-1-3)j$

$\vec{C} = 3i - 4j$

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

$\theta = \tan^{-1}\left(\frac{-4}{3}\right) \approx -53,13°$

$\theta = 360° - 53,13° = \boxed{306,87°}$

iii) $\vec{C} = \vec{A} - \vec{B}$

$C = (2-5)i + (3-(-1))j$

$\vec{C} = -3i + 4j$

$|\vec{C}| = \sqrt{(-3)^2 + 4^2} = \sqrt{9+6} = \sqrt{25} = 5$

$\theta \tan^{-1}\left(\frac{4}{3}\right) \rightarrow \theta \tan^{-1}(-1,333) \approx -53,13°$

$\tan^{-1}\theta = 180° - 53,13° = \boxed{126,87°}$

b)

i) $\vec{C} = 210\,km, 30°$

$C_x = 210 \cos(30°) = 210 \cdot 0,866 = 181,86\,km$

$C_y = 210 \sin(30°) = 210 \cdot 0,5 = 105\,km$

$\vec{C} = 181,86i + 105j\,km$

ii) $\vec{D}$ $\angle 52$, 25N

$D_x = 25 \cos(52°) = 25 \cdot 0,6157 = 15,39N$

$D_y = 25 \sin(52°) = 25 \cdot 0,7880 = 19,70N$

$\rightarrow$

$D = 15,39i + 19,70jN.$

iii) $E = \angle 32$ $42\,m/s^2$

$E_x = 42 \cos(32°) = 42 \cdot 0,8480 = 35,62\,m/s$

$E_y = 42 \sin(32°) = 42 \cdot 0,5299 = 22,26\,m/s$

$\vec{E} = 35,62i - 22,26j\,m/s^2$