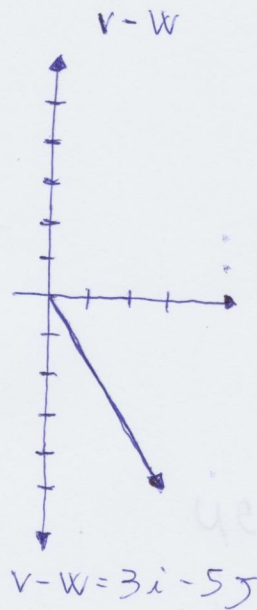
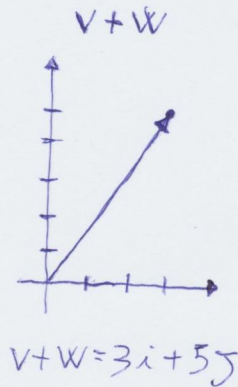
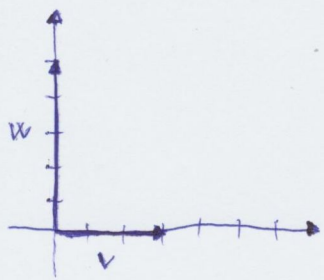


FISICA 1 - 21/11/2012

LEOMBY
EFT
ORP.

A



$$V \cdot W = 3 \cdot 5 \cdot \cos \frac{\pi}{2} = 3 \cdot 5 \cdot 0 = 0 \quad \text{oppure: } V \cdot W = 3 \cdot 0 + 0 \cdot 5 = 0$$

$$|V \times W| = 3 \cdot 5 \sin \frac{\pi}{2} = 15 \quad \text{direzione: asse } z \quad \text{verso: positivo.}$$

$$v' = 4i \quad w' = 7i$$

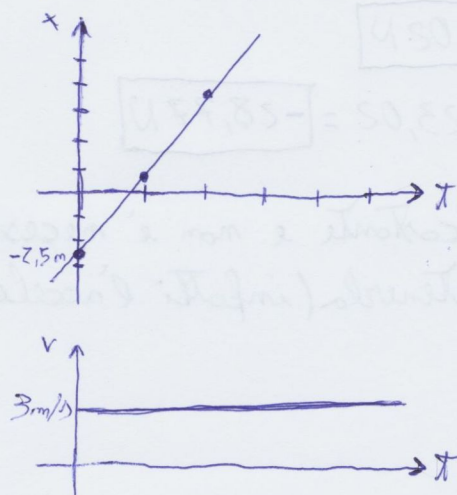
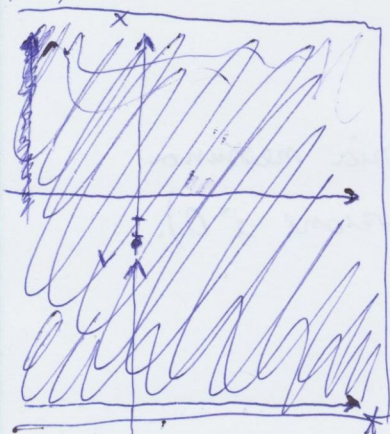
$$v' \cdot w' = 4 \cdot 7 \cdot \cos 0 = 4 \cdot 7 \cdot 1 = 28 \quad \text{oppure } v' \cdot w' = 4 \cdot 7 + 0 \cdot 0 = 28$$

$$|v' \cdot w'| = 4 \cdot 7 \cdot \sin 0 = 4 \cdot 7 \cdot 0 = 0 \quad \text{direzione e verso ininfluenti (il modulo è nullo!)}$$

B

1) Moto rettilineo uniforme

2) 3)



x	t
-2,5	0
0,5	1
3,5	2

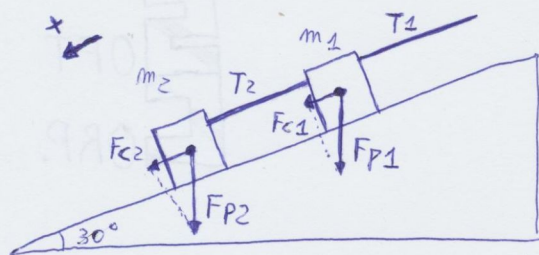
$$x = vt + x_0$$

$$x = vt - 2,5$$

4) Si tratta di un moto parabolico:

Asse x : moto rettilineo uniforme (con $v = 3 \text{ m/s}$)Asse y : moto uniformemente accelerato (con $a = -9,81 \text{ m/s}^2$)

C



$$m_1 = 1 \text{ Kg}$$

$$m_2 = 4 \text{ Kg}$$

1)

$$F_{p1} = m_1 \cdot g = 1 \cdot 9,81 = 9,81 \text{ N}$$

$$F_{c1} = F_{p1} \cos 60 = 9,81 \cdot 0,5 = 4,9 \text{ N}$$

$$F_{p2} = m_2 \cdot g = 4 \cdot 9,81 = 39,24 \text{ N}$$

$$F_{c2} = F_{p2} \cos 60 = 39,24 \cdot 0,5 = 19,62 \text{ N}$$

$$T_2 = -F_{c2} = \boxed{-19,62 \text{ N}}$$

$$T_1 = -F_{c1} + T_2 = -4,9 - 19,62 = \boxed{-24,52 \text{ N}}$$

2)

$$F_{A1} = F_{p1} \cos 30 \cdot \mu = 9,81 \cdot \frac{\sqrt{3}}{2} \cdot 0,1 = 0,85 \text{ N}$$

$$F_{A2} = F_{p2} \cos 30 \cdot \mu = 39,24 \cdot \frac{\sqrt{3}}{2} \cdot 0,1 = 3,4 \text{ N}$$

$$T_2 = -F_{c2} - F_{A2} = -19,62 - 3,4 = \boxed{-23,02 \text{ N}}$$

$$T_1 = -F_{c1} - F_{A1} + T_2 = -4,9 - 0,85 - 23,02 = \boxed{-28,77 \text{ N}}$$

NOTA: la velocità di 10 m/s è costante e non è necessaria nessuna forza aggiuntiva per mantenerla (infatti l'accelerazione è 0).