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$$\Delta x = 7 \text{ km} \quad \Delta x = v_0 \Delta t + \frac{1}{2} a \Delta t^2$$

$$\Delta t = 31,8 \text{ s} \quad 1000 = \frac{1}{2} a \cdot (31,8)^2$$

$$1 \text{ km} \cdot \frac{10^3 \text{ m}}{1 \text{ km}} = 1000 \text{ m} \quad a = \frac{2000}{(31,8)^2} = [1,98 \text{ m/s}^2]$$

$$v = v_0 + a \Delta t = 1,98 \cdot 31,8 = [62,89 \text{ m/s}]$$

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Dorsal (1)

$$x_0 = 400 \text{ m}$$

$$v = 8 \text{ m/s}$$

$$t_0 = 2 \text{ s}$$

Dorsal (2)

$$x_0 = 400 \text{ m}$$

$$t_0 = 2 \text{ s}$$

$$v = 6 \text{ m/s}$$

$$\text{últims 400 m MRUA}$$

$$\therefore \text{acaba } v_f = 9 \text{ m/s}$$

a) 1) $x = x_0 + v(t - t_0)$ 2) $v^2 = v_0^2 + 2a\Delta x$

b) $800 = 400 + 8t$ $9^2 = 6^2 + 2a(800 - 400)$

$t = \frac{400}{8} = [50 \text{ s}]$ $81 - 36 = 800a$

$a = \frac{45}{800} = 0,05625 \text{ m/s}^2$

Guanya l'atleta del dorsal 1 perquè triga menys temps.

$$v = v_0 + a(t - t_0)$$

$$9 = 6 + 0,05625(t - 2)$$

$$3 = 0,05625t - 0,1125$$

$$t = \frac{3,1125}{0,05625} = [55,33 \text{ s}]$$

* podíem haver utilitzat l'equació del moviment; resoldre una equació de 2n grau!

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Dades

$$a = -4 \text{ m/s}^2$$

$$t = 4 \text{ s}; x = 16 \text{ m}; v = 6 \text{ m/s}$$

$$x = x_0 + v_0 t - \frac{1}{2} a t^2$$

$$v = v_0 + a t$$

$$v_0 = v - a t = 6 - (-4) \cdot 4 = [22 \text{ m/s}]$$

$$16 = x_0 + 22 \cdot 4 - \frac{1}{2} (4)^2$$

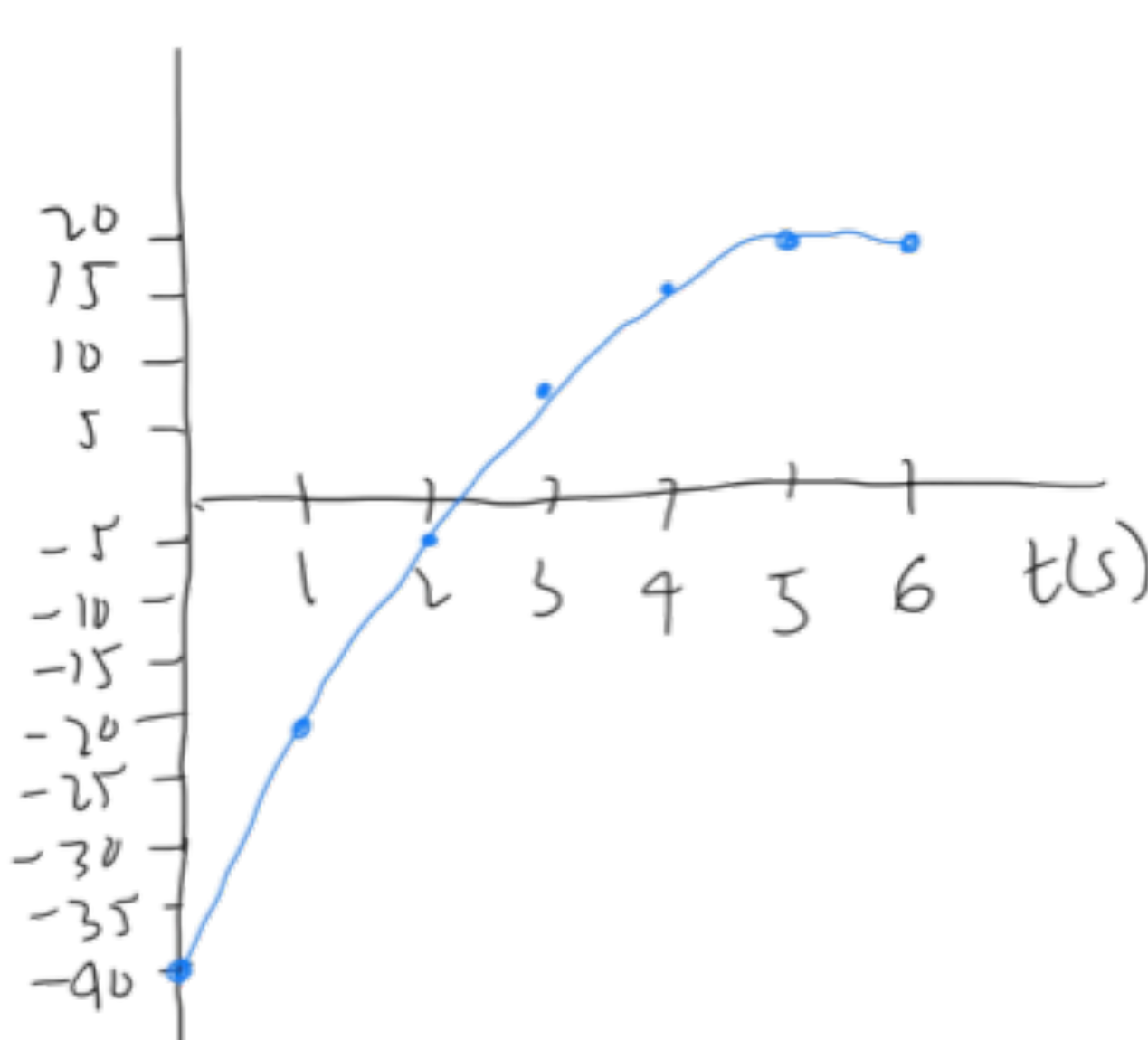
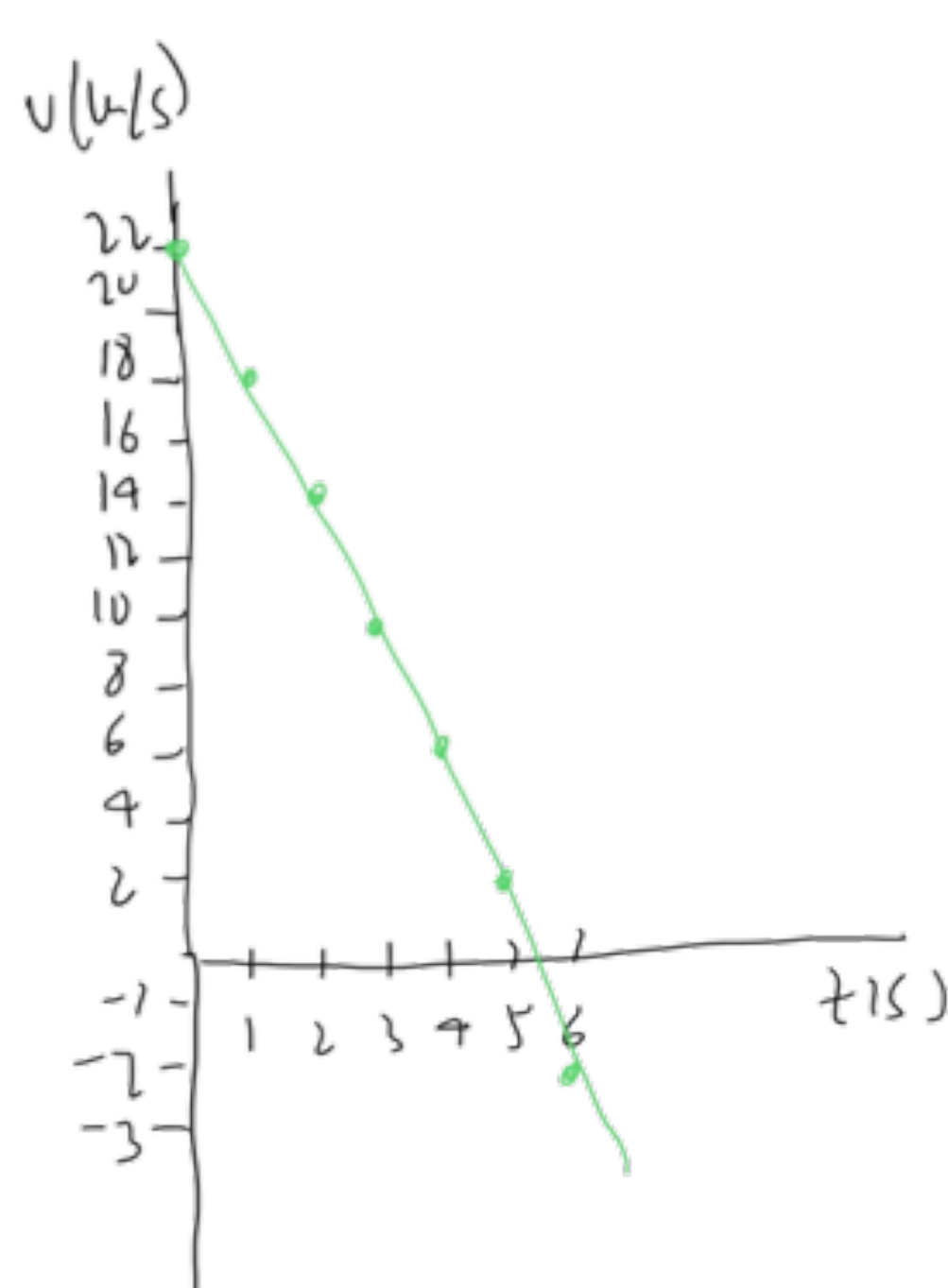
$$x_0 = 16 - 88 + 32 = [-40 \text{ m}]$$

Equació $x = -40 + 22t - 2t^2$

$v = 22 - 4t$

t(s)	x(m)
0	-40
1	-20
2	-4
3	8
4	16
5	20
6	20

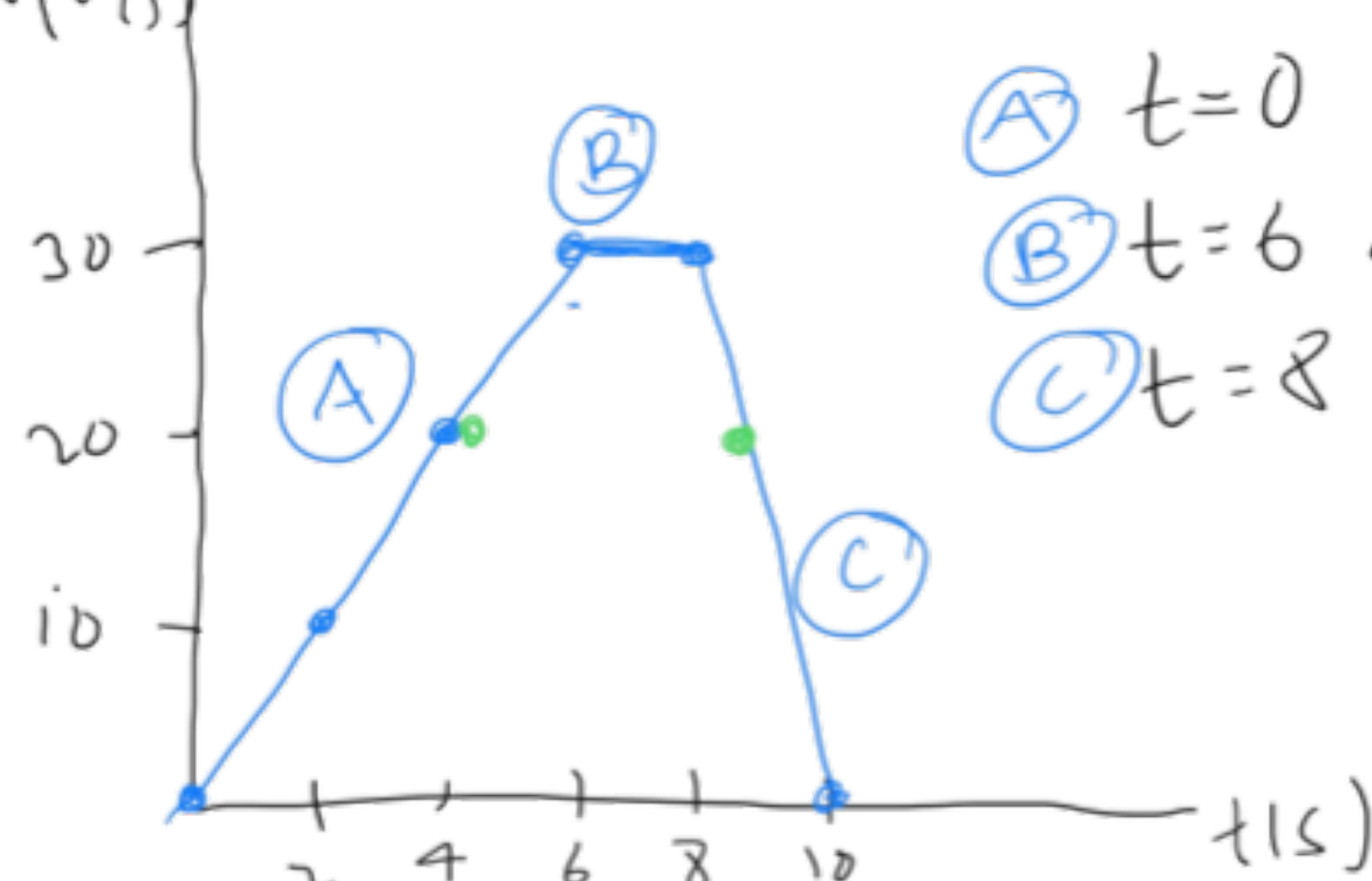
t(s)	v(m/s)
0	22
1	18
2	14
3	10
4	6
5	2
6	-2



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a)

v(m/s)



A) $t = 0$ a $t = 6 \text{ s} \rightarrow \text{MRUA acc.}$

B) $t = 6$ a $t = 8 \text{ s} \rightarrow \text{MRU}$

C) $t = 8$ a $t = 10 \text{ s} \rightarrow \text{MRUA desacc.}$

b)

A) $a = \frac{v - v_0}{t - t_0} = \frac{30 - 0}{6 - 0} = [5 \text{ m/s}^2]$

B) $a = 0 \text{ m/s}^2 \rightarrow \text{MRU}$

C) $a = \frac{v - v_0}{t - t_0} = \frac{0 - 30}{10 - 8} = [-15 \text{ m/s}^2]$

c)

A) $x = x_0 + v_0 t + \frac{1}{2} a t^2 = 2,5 \cdot (6)^2 = [90 \text{ m}]$

B) $x = x_0 + v(t - t_0) = 30(8 - 6) = [60 \text{ m}]$

C) $x = x_0 + v_0(t - t_0) + \frac{1}{2} a(t - t_0)^2 = 30(10 - 8) - 7,5(10 - 8)^2 = 60 - 30 = [30 \text{ m}]$

d)

$$v = v_0 + a(t - t_0)$$

$$20 = 5t$$

$$[t = 4 \text{ s}]$$

$$v = v_0 + a(t - t_0)$$

$$20 = 30 - 15(t - 8)$$

$$-10 = -15t + 120$$

$$15t = 130$$

$$t = \frac{130}{15} = [8,66 \text{ s}]$$

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$$v = \frac{360 \text{ km}}{\text{h}} \cdot \frac{10^3 \text{ m}}{1 \text{ km}} \cdot \frac{1 \text{ h}}{3600 \text{ s}} = 100 \text{ m/s}$$

$$t = 25 \text{ s}$$

a)

$$v = v_0 + a t$$

$$100 = a \cdot 25; [a = 4 \text{ m/s}^2]$$

$$a = \frac{100}{25}$$

b)

$$x = x_0 + v_0 t + \frac{1}{2} a t^2$$

$$x = 2 \cdot 25^2 = [1250 \text{ m}]$$

c)

$$x = 2t^2$$

$$v = 4t$$

t(s)	x(m)
0	0
5	50
10	200
15	450
20	800
25	1250

t(s)	v(m/s)
0	0
5	20
10	40
15	60
20	80
25	100

