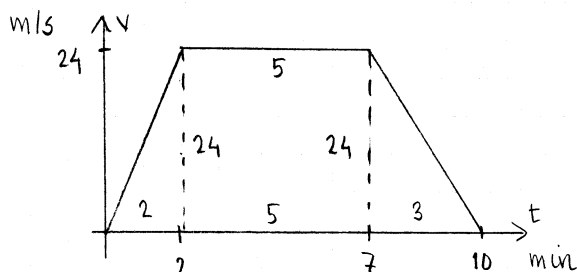
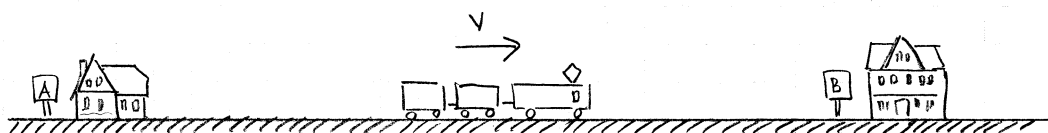


3.33



(a) Topphastigheten = 24 m/s.

$$\text{Accelerationen } a = \frac{\Delta v}{\Delta t} = \frac{(24 - 0) \text{ m/s}}{(2 \cdot 60 - 0) \text{ s}} = \frac{24}{120} \text{ m/s}^2 = \underline{\underline{0,20 \text{ m/s}^2}}$$

Inbromsningen tar $\Delta t = (10,0 - 7,0) \text{ min} = \underline{\underline{3,0 \text{ min}}}$

Avståndet mellan stationerna = "arean under grafen":

$$\Delta s = \left(\frac{24 \cdot 2 \cdot 60}{2} + 24 \cdot 5 \cdot 60 + \frac{24 \cdot 3 \cdot 60}{2} \right) \text{ m} = 10,8 \cdot 10^3 \text{ m} = \underline{\underline{10,8 \text{ km}}}$$

Observera att
v måste omvandlas
till sekunder!

(b) Medelhastigheten

$$v_m = \frac{\Delta s}{\Delta t} = \frac{10,8 \cdot 10^3 \text{ m}}{10 \cdot 60 \text{ s}} = 18 \text{ m/s}$$

(c) En tabell hjälper oss göra beräkningarna:

Tidsintervall	Δt (s)	Δv (m/s)	$a = \frac{\Delta v}{\Delta t}$ (m/s^2)
0 - 2 min	$2 \cdot 60 = 120$	$24 - 0 = 24$	$\frac{24}{120} = 0,20$
2 - 7 min	$5 \cdot 60 = 300$	$24 - 24 = 0$	0
7 - 10 min	$3 \cdot 60 = 180$	$0 - 24 = -24$	$\frac{-24}{180} = -0,13$

3.33

(parts)

Acceleration-tid-diagram:

