

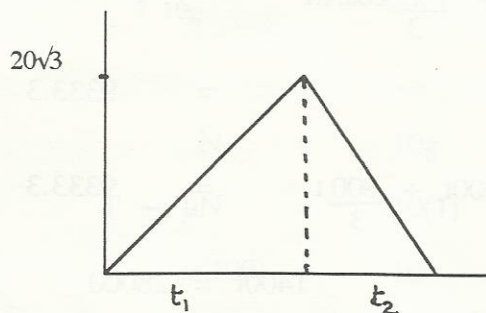
1995

1(a) (i) acceleration = $\frac{20}{40}$ 5
 = 0.5 m/s^2 5 10

(ii) deceleration = $\frac{20}{80}$ 5
 = 0.25 m/s^2 5 10

(iii) distance = area
 = $0.5(40)(20) + 120(20) + 0.5(80)(20)$ 5
 = $400 + 2400 + 800$
 = 3600 m 5 10

(b)



distance = area
 $3600 = 0.5(\text{time})20\sqrt{3}$ 5, 5
 = $\frac{360}{\sqrt{3}}$ or $120\sqrt{3}$ 5
 = 207.8 s 5 20

or

$0.5 = \frac{20\sqrt{3}}{t_1} \Rightarrow t_1 = 40\sqrt{3}$ 5

and $0.25 = \frac{20\sqrt{3}}{t_2} \Rightarrow t_2 = 80\sqrt{3}$ 5

$\Rightarrow \text{time} = t_1 + t_2 = 120\sqrt{3}$ 5
 = 207.8 s 5 20