2000

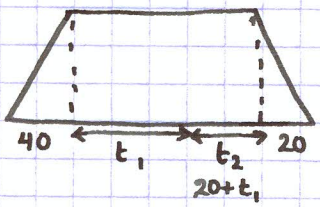
When they meet:

distance travelled is same ie $500 + s_1 = 250 + s_2$

time travelled is the same ie $40 + t_1 = 20 + t_2$ $\quad t_2 = 20 + t_1$

s_1 = distanced travelled at constant acceleration.

25



$\Rightarrow 10000 = 500 + 25(20 + 2t_1) + 250$

$10000 - 750 - 500 = 50t_1$

$8750 = 50t_1$

$175 = t_1$ $\Rightarrow$ distance $= 25 \times 175 =$ **4375**

$195 = t_2$ " $= 25 \times 195 =$ **4875**

$\therefore$ from P = 205 secs from q = 205 secs.

ii. p travels 5000 m $\Rightarrow$ 4500 contant q travels 5000 $\Rightarrow$ 4750 constant

$\therefore \quad t_1 = \frac{4500}{25} = 180$ seconds. $\quad t_2 = \frac{4750}{25} = 190$ seconds

220 seconds altogether = 210 althogether

$\Rightarrow$ delayed by 10 seconds

Find time

from p accelerating

u 0
v 25
a
s 500
t

$t_1 = \frac{2s}{u+v}$

$t_1 = \frac{500}{25} = 40$ secs.

from q accel.

u 0
v 25
a
s 250
t_2

$t_2 = \frac{500}{25} = 20$ secs.