

$$3. \frac{70 \text{ km}}{\text{hr}} \times \frac{1000 \text{ m}}{1 \text{ km}} \times \frac{1 \text{ hr}}{3600 \text{ s}} = 19.44 \text{ m/s}$$

rest time
each interval

	Accel	Const Speed	Decelerating
initial pos	0	94.48	483.28
final pos	94.48 (B)	(C) 483.28	
initial vel	0	19.44	19.44
final vel	19.44	19.44	0
acc	2	0	(D) -3.89
duration time	9.72 (A)	20	5

$$(A) V_f = V_0 + at$$

$$19.44 = 0 + 2t$$

$$t = 9.72$$

$$(C) x_f = x_0 + v_0 t$$

$$x_f = 94.48 + 19.44(20)$$

$$x_f = 483.28$$

(B) ~~xxxx~~

$$x_f = x_0 + v_0 t + \frac{1}{2} at^2$$

$$x_f = \frac{1}{2} (2) (9.72)^2$$

$$x_f = 94.48 \text{ m}$$

$$(D) V_f = V_0 + at$$

$$0 = 19.44 + a(5)$$

$$a = -3.89$$

$$(E) x_f = x_0 + v_0 t + \frac{1}{2} at^2$$

$$x_f = 483.28 + 19.44(5) - \frac{1}{2} (3.89)(5)^2$$

$$- \frac{1}{2} (3.89)(5)^2$$

$$x_f = 531.86$$

$$t_{\text{total}} = 9.72 + 20 + 5 = 34.72 \text{ second}$$

$$V_{\text{ave}} = \frac{\text{distance}}{\text{time}} = \frac{531.86}{34.72} = 15.32 \text{ m/s}$$