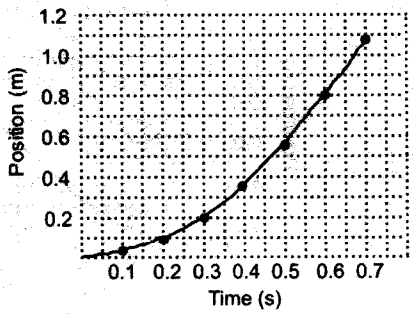
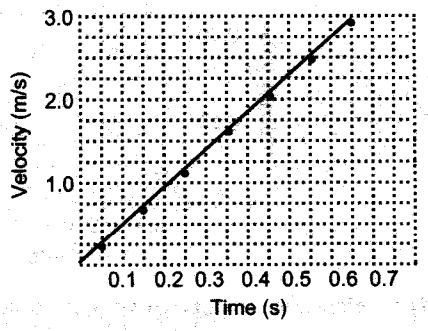
11. a)

time (s)	displacement from t = 0 (m)	displacement during time interval (m)	average velocity during time interval (m/s)
0	0.0	0.02	0.20
0.10	0.02	0.07	0.70
0.20	0.09	0.11	1.10
0.30	0.20	0.16	1.60
0.40	0.36	0.20	2.00
0.50	0.56	0.24	2.40
0.60	0.80	0.29	2.90
0.70	1.09		

b) Position-Time Graph



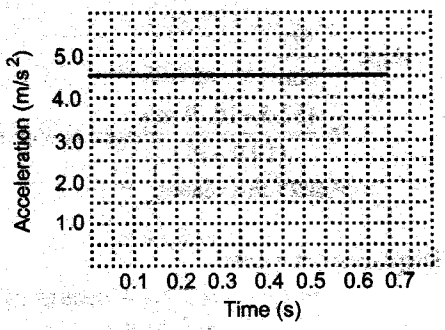
c) Velocity-Time Graph



d) acceleration = slope of velocity-time graph

$$\text{slope} = \frac{\text{rise}}{\text{run}}$$
$$= \frac{(2.25-0)\text{ m/s}}{(0.50-0)\text{ s}}$$
$$= 4.5\text{ m/s}^2 \text{ right}$$

Acceleration-Time Graph



e) To find the velocity, read your velocity-time graph.

At 0.30 s, velocity = 1.3 m/s right.
At 0.60 s, velocity = 2.7 m/s right.

1.

v_0	v_f	a	d	t
0	12.0 m/s	?	X	3.40 s

$$a = \frac{v_f - v_0}{t}$$
$$= \frac{12.0\text{ m/s} - 0}{3.40\text{ s}}$$
$$= 3.53\text{ m/s}^2 \text{ west}$$

2.

v_0	v_f	a	d	t
0	15 m/s	X	?	4.7 s

$$d = \left(\frac{v_f + v_0}{2}\right)t$$
$$= \left(\frac{15\text{ m/s} + 0}{2}\right)4.7\text{ s}$$
$$= 35\text{ m east}$$

3.

v_0	v_f	a	d	t
0	?	1.9 m/s²	?	5.0 s

a) $$d = v_0 t + \frac{1}{2}at^2$$
$$= \frac{1}{2}(1.9\text{ m/s}^2)(5.0\text{ s})^2$$
$$= 24\text{ m right}$$

