b) $a = \dfrac{v_f - v_0}{t}$

$1.9 \text{ m/s}^2 = \dfrac{v_f - 0}{5.0 \text{ s}}$

$v_f = 9.5 \text{ m/s right}$

c) magnitude of displacement: 24 m

d) magnitude of velocity: 9.5 m/s

4.

v_0	v_f	a	d	t
2.0 m/s	?	1.3 m/s^2	15 m	X

a) $v_f^2 = v_0^2 + 2ad$

$= (2.0 \text{ m/s})^2 + 2(1.3 \text{ m/s}^2)(15 \text{ m})$

$v_f = 6.6 \text{ m/s west}$

b) magnitude of velocity = 6.6 m/s

5.

v_0	v_f	a	d	t
5.0 m/s	?	3.0 m/s^2	X	2.9 s

$a = \dfrac{v_f - v_0}{t}$

$3.0 \text{ m/s}^2 = \dfrac{v_f - 5.0 \text{ m/s}}{2.9 \text{ s}}$

$v_f = (3.0 \text{ m/s}^2)(2.9 \text{ s}) + 5.0 \text{ m/s}$

$= 14 \text{ m/s north}$

6.

v_0	v_f	a	d	t
0	11.0 m/s	X	26.0 m	?

$d = \left(\dfrac{v_f + v_0}{2}\right)t$

$26.0 \text{ m} = \left(\dfrac{11.0 \text{ m/s} + 0}{2}\right)t$

$t = 4.73 \text{ s}$

7.

v_0	v_f	a	d	t
0	X	?	20.0 m	8.10 s

$d = v_0 t + \dfrac{1}{2}at^2$

$20.0 \text{ m} = \dfrac{1}{2}(a)(8.10 \text{ s})^2$

$a = 0.610 \text{ m/s}^2 \text{ right}$

8.

v_0	v_f	a	d	t
15 km/h	65 km/h	4.0 m/s^2	?	X

$v_0 = 15 \text{ km/h} \times 1000 \text{ m/km} \times \dfrac{1 \text{ h}}{3600 \text{ s}}$

$= 4.17 \text{ m/s}$

$v_f = 65 \text{ km/h} \times 1000 \text{ m/km} \times \dfrac{1 \text{ h}}{3600 \text{ s}}$

$= 18.1 \text{ m/s}$

$v_f^2 = v_0^2 + 2ad$

$(18.1 \text{ m/s})^2 = (4.17 \text{ m/s})^2 + 2(4.0 \text{ m/s}^2)d$

$d = \dfrac{(18.1 \text{ m/s})^2 - (4.17 \text{ m/s})^2}{2(4.0 \text{ m/s}^2)}$

$= 39 \text{ m east}$

9.

v_0	v_f	a	d	t
0	122.0 km/h			10.5 s

$v_{average} = \dfrac{v_f + v_0}{2}$

$= \dfrac{122.0 \text{ km/h} + 0}{2}$

$= 61.0 \text{ km/h north}$

$= 61.0 \text{ km/h} \times 1000 \text{ m/km} \times \dfrac{1 \text{ h}}{3600 \text{ s}}$

$= 16.9 \text{ m/s north}$

$v_{average} = \dfrac{d}{t}$

$v_f = 122.0 \text{ km/h} \times 1000 \text{ m/km} \times \dfrac{1 \text{ h}}{3600 \text{ s}}$

$= 33.9 \text{ m/s}$

Find d

$d = \left(\dfrac{v_f + v_0}{2}\right)t$

$= \left(\dfrac{33.9 \text{ m/s} + 0}{2}\right)10.5 \text{ s}$

$= 178 \text{ m}$

$v_{average} = \dfrac{178 \text{ m}}{10.5 \text{ s}}$

$= 16.9 \text{ m/s north}$