

- 1 (a) A list of quantities that are either scalars or vectors is shown in Fig. 1.1.

quantity	scalar	vector
distance	✓	
energy		
momentum		
power		
time		
weight		

Fig. 1.1

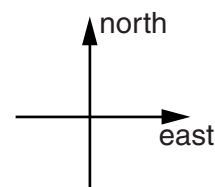
Complete Fig. 1.1 to indicate whether each quantity is a scalar or a vector.

One line has been completed as an example.

[2]

- (b) A girl runs 120m due north in 15s. She then runs 80m due east in 12s.

- (i) Sketch a vector diagram to show the path taken by the girl. Draw and label her resultant displacement R.



[1]

(ii) Calculate, for the girl,

1. the average speed,

average speed = ms^{-1} [1]

2. the magnitude of the average velocity v and its angle with respect to the direction of the initial path.

magnitude of v = ms^{-1}

angle = $^{\circ}$
[3]

[Total: 7]

2 (a) Describe the effects, one in each case, of systematic errors and random errors when using a micrometer screw gauge to take readings for the diameter of a wire.

systematic errors:

.....

random errors:

.....

[2]

(b) Distinguish between precision and accuracy when measuring the diameter of a wire.

precision:

.....

accuracy:

.....

[2]

[Total: 4]