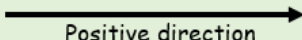


8D Vectors

Scalar quantities (magnitude only)			Vector quantities (magnitude and direction)		
Quantity	Description	Unit	Quantity	Description	Unit
Distance	Measure of length	m	Displacement	Distance in a specific direction	m
Speed	Measure of how quickly something moves	ms ⁻¹	Velocity	Rate of change of displacement	ms ⁻¹
Time	Measure of ongoing events	s	Acceleration	Rate of change of velocity	ms ⁻²
Mass	Measure of the quantity of matter in an object	kg	Force / weight	Described by magnitude, direction and point of application	N

1. Fully describe the motion of the particles below:

	(A)	(B)	(C)	(D)
Velocity	+ve	+ve	-ve	-ve
Acceleration	+ve	-ve	-ve	+ve
				

2D Notation

2. The velocity of a particle is given by $v = 3i + 5j \text{ ms}^{-1}$

Find:

a) The speed of the particle

b) The angle the direction of motion of the particle makes with the unit vector i .

3. A man walks from A to B and then from B to C. His displacement from A to B is $6\mathbf{i} + 4\mathbf{j}$ km. His displacement from B to C is $5\mathbf{i} - 12\mathbf{j}$ km.
- a) What is the magnitude of the displacement from A to C?

- b) What is the total distance the man walked in getting from A to C?