1 Which of the following is a scalar quantity?

A acceleration

B mass

C momentum

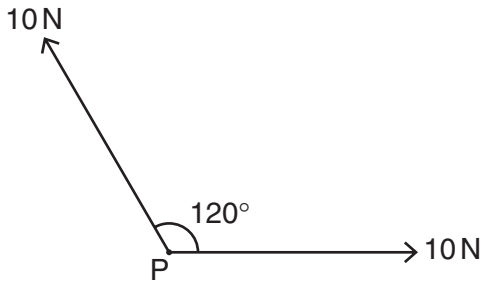
D velocity

2 The unit of work, the joule, may be defined as the work done when the point of application of a force of 1 newton is moved a distance of 1 metre in the direction of the force.

Express the joule in terms of the base units of mass, length and time, the kg, m and s.

A $kg\,m^{-1}\,s^{2}$ **B** $kg\,m^{2}\,s^{-2}$ **C** $kg\,m^{2}\,s^{-1}$ **D** $kg\,s^{-2}$

3 Two forces, each of 10 N, act at a point P as shown in the diagram. The angle between the directions of the forces is 120°.



What is the magnitude of the resultant force?

A 5 N **B** 10 N **C** 17 N **D** 20 N

4 Which experimental technique reduces the systematic error of the quantity being investigated?

A adjusting an ammeter to remove its zero error before measuring a current

B measuring several internodal distances on a standing wave to find the mean internodal distance

C measuring the diameter of a wire repeatedly and calculating the average

D timing a large number of oscillations to find a period

5 A student makes measurements from which she calculates the speed of sound as $327.66\,m\,s^{-1}$. She estimates that her result is accurate to ±3 %.

Which of the following gives her result expressed to the appropriate number of significant figures?

A $327.7\,m\,s^{-1}$ **B** $328\,m\,s^{-1}$ **C** $330\,m\,s^{-1}$ **D** $300\,m\,s^{-1}$