

- 10 A force F is applied to a freely moving object. At one instant of time, the object has velocity v and acceleration a .

Which quantities **must** be in the same direction?

- A a and v only
 - B a and F only
 - C v and F only
 - D v , F and a
- 11 The momentum of an object changes from 160 kg m s^{-1} to 240 kg m s^{-1} in 2 s.

What is the mean resultant force on the object during the change?

- A 40 N B 80 N C 200 N D 400 N

- 12 A car accelerates in a straight line.

A graph of the momentum of the car is plotted against time.

What is evaluated by finding the gradient of the graph at a particular time?

- A the acceleration of the car
- B the resultant force on the car
- C the kinetic energy of the car
- D the power supplied to the car

Space for working