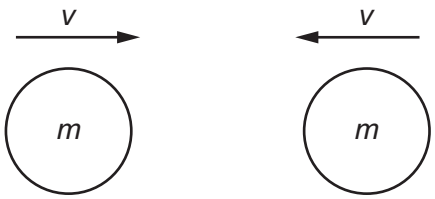
8 The momentum of a car of mass m increases from p_1 to p_2.

What is the increase in the kinetic energy of the car?

A $\frac{(p_2^2 - p_1^2)}{2m}$ **B** $\frac{(p_2 - p_1)^2}{2m}$ **C** $\frac{p_2 - p_1}{2m}$ **D** $\frac{p_1 - p_2}{2m}$

9 Two similar spheres, each of mass m and travelling with speed v, are moving towards each other.



The spheres have a head-on elastic collision.

Which statement is correct?

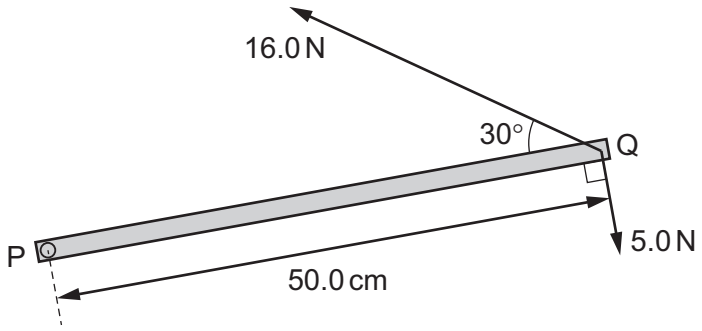
A The spheres stick together on impact.

B The total kinetic energy after impact is mv^2.

C The total kinetic energy before impact is zero.

D The total momentum before impact is $2mv$.

10 A horizontal metal bar PQ of length 50.0 cm is hinged at end P. The diagram shows the metal bar viewed from above.



Two forces of 16.0 N and 5.0 N are in the horizontal plane and act on end Q as shown in the diagram.

What is the total moment about P due to the two forces?

A 1.5 N m **B** 4.4 N m **C** 6.5 N m **D** 9.4 N m