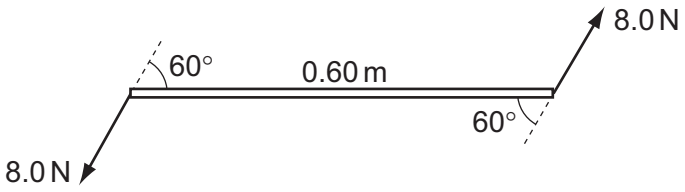
12 The diagram shows the masses and velocities of two trolleys about to collide.

After the impact they move off together.

What is the total kinetic energy of the trolleys after the collision?

A 1.3 J **B** 12 J **C** 18 J **D** 19 J

13 Two 8.0 N forces act at each end of a beam of length 0.60 m. The forces are parallel and act in opposite directions. The angle between the forces and the beam is 60°.



What is the torque of the couple exerted on the beam?

A 2.4 N m **B** 4.2 N m **C** 4.8 N m **D** 9.6 N m

14 Which expression **defines** power?

A force × distance moved in the direction of the force

B force × velocity

C work done ÷ time taken

D work done × time taken

15 The density of mercury is 13.6×10^3 kg m^{-3}.

The pressure difference between the bottom and the top of a column of mercury is 100 kPa.

What is the height of the column?

A 0.75 m **B** 1.3 m **C** 7.4 m **D** 72 m