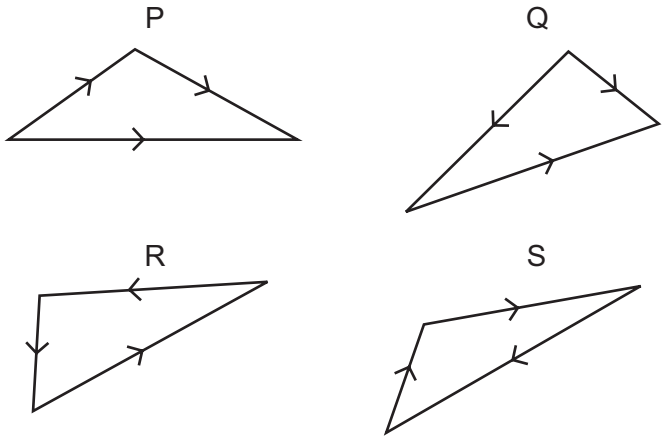
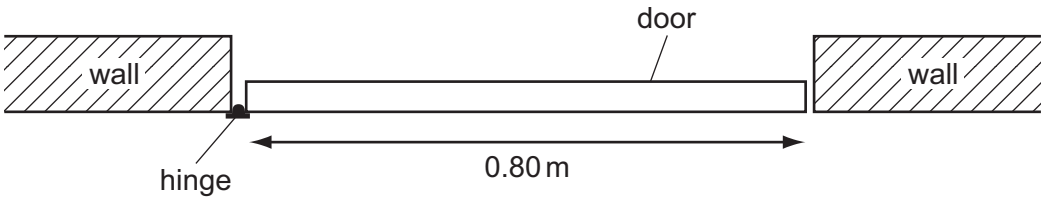
13 Which two vector diagrams represent forces in equilibrium?



A P and Q **B** Q and R **C** R and S **D** S and P

14 The diagram shows a plan view of a door which requires a moment of 12 N m to open it.



What is the minimum force that must be applied at the door's midpoint to ensure it opens?

A 4.8 N **B** 9.6 N **C** 15 N **D** 30 N

15 A car of mass 1000 kg first travels forwards at 25 m s^{-1} and then backwards at 5 m s^{-1}.

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

A 200 kJ **B** 300 kJ **C** 325 kJ **D** 450 kJ