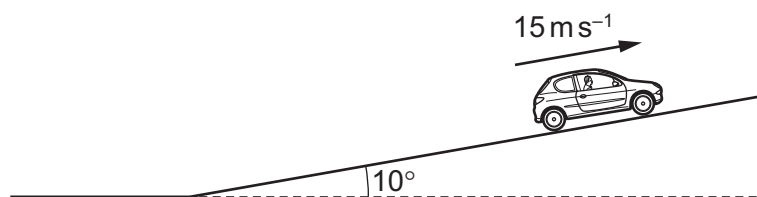


13 In which example is it **not** possible for the underlined body to be in equilibrium?

- A An aeroplane climbs at a steady rate.
- B An aeroplane tows a glider at a constant altitude.
- C A speedboat changes direction at a constant speed.
- D Two boats tow a ship into harbour.

14 A car of mass  $1100\text{ kg}$  is travelling at a constant speed of  $15\text{ m s}^{-1}$  up a slope inclined at  $10^\circ$  to the horizontal. The combined frictional forces acting on the car are directed down the slope and are equal to  $\frac{W}{5}$ , where  $W$  is the weight of the car.



What is the useful output power of the car's engine?

- A 28 kW
- B 32 kW
- C 60 kW
- D 190 kW

15 An old-fashioned  $60\text{ W}$  lamp converts 95% of its energy supply into heat. A  $4.0\text{ W}$  modern lamp has the same power output of light as the old-fashioned lamp.

What is the efficiency of the modern lamp?

- A 5.0%
- B 6.7%
- C 75%
- D 95%