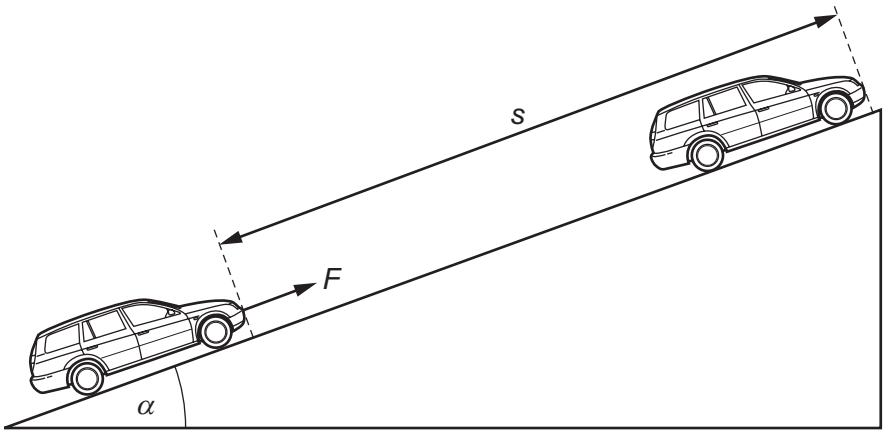
17 A constant force F, acting on a car of mass m, moves the car up a slope through a distance s at constant velocity v. The angle of the slope to the horizontal is α.



What is the ratio $\frac{\text{gravitational potential energy gained by car}}{\text{work done by force } F}$?

A $\frac{mgs\sin\alpha}{Fv}$ **B** $\frac{mv}{Fs}$ **C** $\frac{mv^2}{2Fs}$ **D** $\frac{mg\sin\alpha}{F}$

18 Car X is travelling at half the speed of car Y. Car X has twice the mass of car Y.

Which statement is correct?

A Car X has half the kinetic energy of car Y.

B Car X has one quarter of the kinetic energy of car Y.

C Car X has twice the kinetic energy of car Y.

D The two cars have the same kinetic energy.

19 During refuelling, a petrol car receives 50 litres of fuel in 90 seconds. The petrol has 34 MJ of energy per litre.

For an electric car to receive the same amount of energy in the same time from a 230 V supply, what is the minimum current required?

A 2700 A **B** 8.2×10^4 A **C** 7.4×10^6 A **D** 6.6×10^8 A