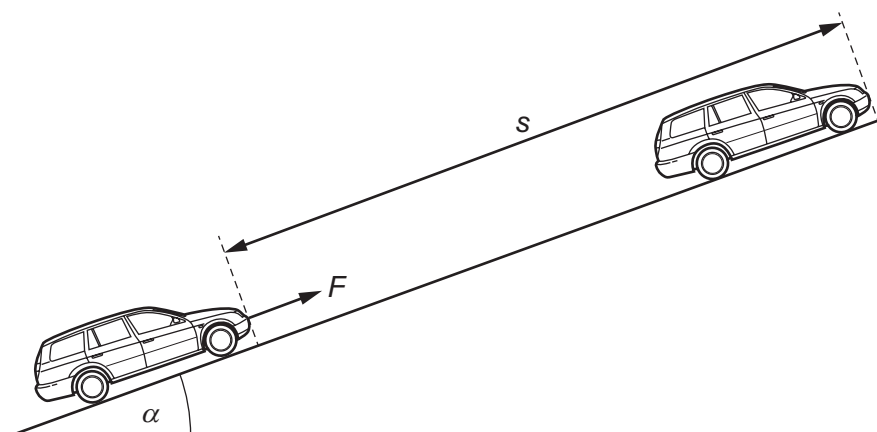


- 17 A constant force  $F$ , acting on a car of mass  $m$ , moves the car up a slope through a distance  $s$  at constant velocity  $v$ . The angle of the slope to the horizontal is  $\alpha$ .



The acceleration of free fall is  $g$ .

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 What is the definition of power?

- A Power is the product of force and velocity.  
 B Power is the product of force and work done per unit time.  
 C Power is the product of force per unit time and velocity.  
 D Power is the rate at which work is done.

- 19 A steel bar of circular cross-section is under tension  $T$ , as shown.

The diameter of the wide portion is double the diameter of the narrow portion.



What is the value of  $\frac{\text{stress in the wide portion}}{\text{stress in the narrow portion}}$ ?

- A 0.25      B 0.50      C 2.0      D 4.0