

18 What is a correct derivation of the equation relating power, force and velocity?

A power = $\frac{\text{work done}}{\text{time taken}}$ and work done = force \times displacement

so power = $\frac{\text{force} \times \text{displacement}}{\text{time taken}}$

so power = force \times velocity

B power = $\frac{\text{work done}}{\text{time taken}}$ and work done = force \times distance

so power = $\frac{\text{force} \times \text{distance}}{\text{time taken}}$

so power = force \times velocity

C power = $\frac{\text{work done}}{\text{time taken}}$ and work done = $\frac{\text{force}}{\text{displacement}}$

so power = $\frac{\text{force}}{\text{displacement}} \times \text{time taken}$

so power = $\frac{\text{force}}{\text{velocity}}$

D power = $\frac{\text{work done}}{\text{time taken}}$ and work done = $\frac{\text{force}}{\text{distance}}$

so power = $\frac{\text{force}}{\text{distance}} \times \text{time taken}$

so power = $\frac{\text{force}}{\text{velocity}}$

19 A cable on a suspension bridge supports a weight of $10.2 \times 10^5 \text{ N}$. This weight causes the cable