

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

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

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

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

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

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

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

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

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

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

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

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

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

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