

- 15 The kinetic energy of a particle is increased by a factor of 4.

By what factor does its speed increase?

A 2                      B 4                      C 8                      D 16

- 16 A horizontal force of 90 N is used to push a box across a horizontal floor. The frictional force on the box is 50 N.

What is the gain in kinetic energy of the box when it is moved through a distance of 6.0 m?

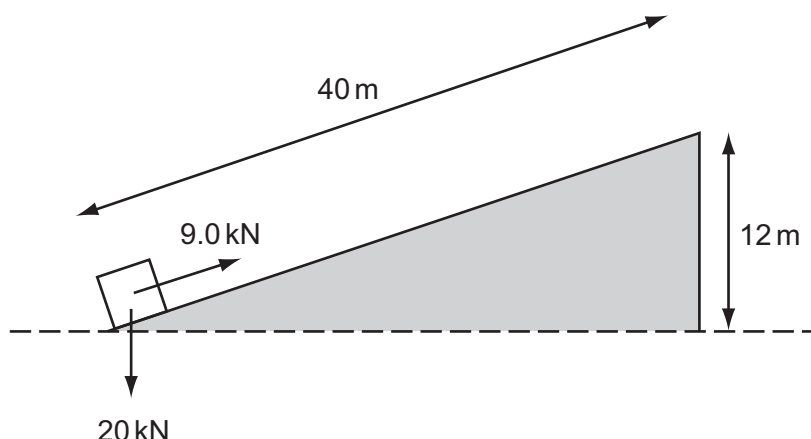
A 240 J                      B 300 J                      C 540 J                      D 840 J

- 17 A cyclist is capable of generating an average power of 3.0 kW during a 4.0 km speed trial. His aerodynamic suit and position on the cycle reduce resistive forces to 180 N.

What is the approximate time achieved in the speed trial?

A 140 s                      B 240 s                      C 1300 s                      D 2200 s

- 18 A constant force of 9.0 kN, parallel to an inclined plane, moves a body of weight 20 kN through a distance of 40 m along the plane at constant speed. The body gains 12 m in height, as shown.



How much of the work done is dissipated as heat?

A 120 kJ                      B 240 kJ                      C 360 kJ                      D 600 kJ

- 19 Which statement applies to the boiling but **not** to the evaporation of a liquid?

A All the bonds between molecules in the liquid are broken.  
B At normal atmospheric pressure, the process occurs at one temperature only.  
C Energy must be provided for the process to happen.  
D The separation of the molecules increases greatly.