

- 19** A grasshopper of mass 0.12 g jumps vertically. It uses its back legs over a time of 0.020 s to jump, leaving the ground with a velocity of 3.0 m s^{-1} .

What is the average power developed by the legs of the grasshopper?

- A** $9.0 \times 10^{-3}\text{ W}$ **B** $1.8 \times 10^{-2}\text{ W}$ **C** $2.7 \times 10^{-2}\text{ W}$ **D** 37 W

- 20** A series of vertical loops with a radius of 100 m is shown below. The speed of the car at the start of the first loop is 10 m s^{-1} . The car is released from the top of the first loop.