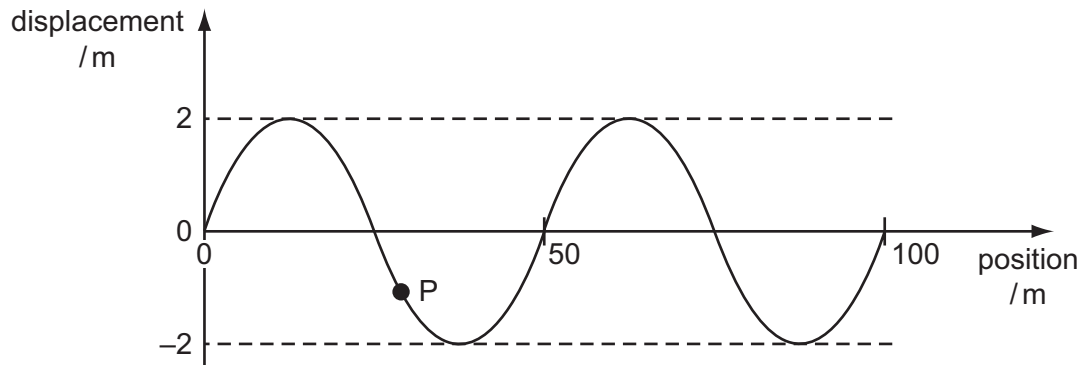23 The graph represents a sinusoidal wave in the sea, travelling at a speed of 8.0 m s^{-1}, at one instant of time. The maximum speed of the oscillating particles in the wave is 2 af, where a is the amplitude and f is the frequency.

An object P of mass 2.0 × 10^{-3} kg floats on the surface.

What is the maximum kinetic energy of P due to the wave? Assume that its motion is vertical.

A 0.026 mJ **B** 4.0 mJ **C** 39 mJ **D** 64 mJ