16 The displacement x at time t of a molecule undergoing simple harmonic motion in a sound wave is given by

$$x = x_0 \sin 2\pi ft$$

where x_0 = 0.32 mm and f = 10 000 Hz.

What is the maximum acceleration of the molecule?

A 2.01×10^{1} m s^{-2}

B 2.01×10^{4} m s^{-2}

C 1.26×10^{6} m s^{-2}

D 1.26×10^{9} m s^{-2}