

4(a)	<u>number</u> of oscillations per unit time
4(b)(i)	kinetic energy (of object) reaches maximum / minimum / zero twice in a cycle
4(b)(ii)	$\omega = 2\pi / T$ $= 2\pi / 0.80$ or $a_0 = \omega^2 x_0$ $\omega = \sqrt{(1.0 / 0.016)}$
	$\omega = 7.9 \text{ rad s}^{-1}$
4(b)(iii)	<i>Any three points from:</i> - oscillations are simple harmonic <u>amplitude</u> = 0.016 m - maximum speed = 0.13 m s^{-1} - total energy of oscillations = $7.0 \times 10^{-4} \text{ J}$ - mass of object = 0.087 kg - maximum momentum = $0.011 \text{ kg m s}^{-1}$ or 0.011 N s
4(b)(iv)	<i>Any two points from:</i> - kinetic energy is a maximum at zero displacement or kinetic energy is zero at maximum displacement - potential energy is zero at zero displacement or potential energy is a maximum at maximum displacement - kinetic energy is maximum when the potential energy is zero or potential energy is a maximum when the kinetic energy is zero
	kinetic energy + potential energy is constant