

Question 14**(5 marks)**

A particle travels in a straight line so that its velocity v cm per second and displacement x cm are related by the equation:

$$v = -0.2x$$

- (a) Determine the acceleration a in terms of its displacement x . (2 marks)

- (b) Does the particle's motion constitute simple harmonic motion? Justify your answer. (1 mark)

It is known that the initial displacement of the particle is $x = 4$ cm.

- (c) Determine, correct to the nearest 0.01 second, when the particle has a displacement of 2 cm. (2 marks)