

NAME (Print) _____

Borough of Manhattan Community College

Course *Physics 215*

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Quiz 05

Simple harmonic motion is described by

$$x(t) = A \cos(2\pi ft + \phi), \quad (1)$$

hence

$$v(t) = dx/dt = 2\pi fA \sin(2\pi ft + \phi), \quad (2)$$

$$a(t) = dv/dt = -(2\pi f)^2 A \cos(2\pi ft + \phi). \quad (3)$$

a. Define x_{\max} , v_{\max} and a_{\max} . (A few words, please.) 15 points

b. Describe how v_{\max} and a_{\max} vary with frequency f . (A few words please) 40 points

c. Describe how the kinetic energy E_K of the motion vary the frequency f .
Define E_K 5 points

Describe E_K vs f . (Some words please.) 40 points
