

E_1
|
 $a = \text{max}$

0
.
 $a = 0$

E_2
|
 $a = \text{max}$

ACCEL
MAP

$$\text{accel} = -\omega^2 x$$

(depends on displacement)

ACCEL
FORMULA

$$\text{Periodic Time} = \frac{2\pi}{\omega}$$

FOOTNOTES

1. A and ω are fixed for a particular problem and once calculated (or told to us) we can, using the formulae above, answer any question about position, speed, accel of the particle at any given instant.

$$2. \quad v_{\text{max}} \Rightarrow x=0 \Rightarrow v^2 = \omega^2 (A^2 - 0^2)$$

$$v = \omega A$$

$$v_{\text{max}} = \omega A$$

$$a_{\text{max}} = -\omega^2 A \quad \text{max accel when } x=A \text{ } (-A)$$