

# HITT

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In a simple harmonic oscillator, at one time  $t_0$  the absolute value of the displacement is  $|x(t_0)| = 4\text{cm}$  and the absolute value of the acceleration is  $|a(t_0)| = (4\pi^2)16\text{cm/s}^2$ .

What is the period of the oscillator?

A:  $T = 3\pi \text{ s}$

B:  $T = 0.5 \text{ s}$

C:  $T = 9\pi \text{ s}$

D:  $T = 6 \text{ s}$

E:  $T = 0.33 \text{ s}$

We know  $\omega^2 = a/x = 4\pi^2 \cdot 16/4$   
-->  $\omega = 4\pi \text{ rad/s}$

$$T = 2\pi/\omega = 1/2\text{s}$$