

Answer on Question #66219-Physics - Molecular Physics Thermodynamics

a Simple harmonic motion is represented by $x(t)=a \cos(\omega)t$ obtain expression for velocity and acceleration of the oscillationr Also plot the time variation of displacement, velocity & acceleration of the oscillator.

Solution

The displacement in the case of harmonic motion is given by

$$x(t) = a \cos \omega t.$$

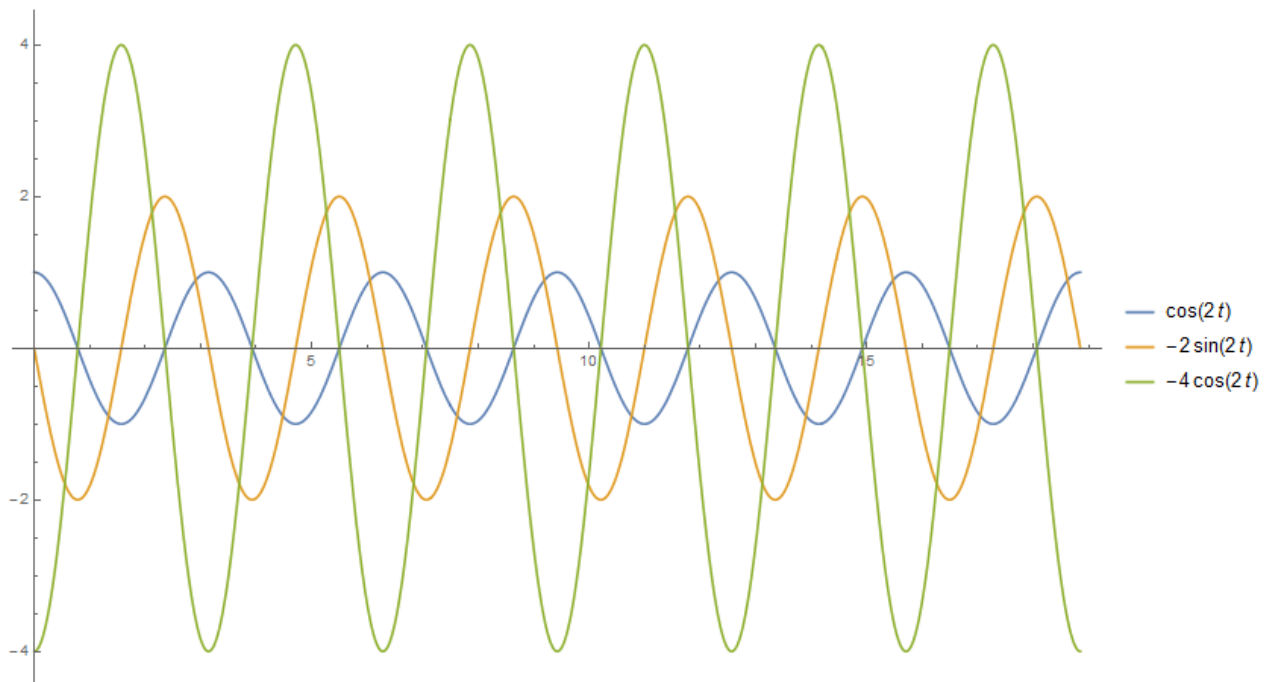
The velocity

$$v(t) = x'(t) = -a \omega \sin \omega t.$$

The acceleration

$$a(t) = v'(t) = -a \omega^2 \cos \omega t$$

Let $a=1, \omega =2$



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