Given

$b/2m = 2.8 \ s^{-1}$

Solution

Find the time for the amplitude to drop to half its value.

Equation 13-17 has an amplitude which depends on time

$$A(t) = A_0 e^{-bt/2m}$$

where A_0 is the original amplitude. If the amplitude drops to half its original value then

$$0.5 = \frac{A(t)}{A_0} = e^{-bt/2m}$$

Solving for t gives

$$\ln(0.5) = \frac{-bt}{2m}$$

$$t = \frac{\ln(0.5)}{-\left(\frac{b}{2m}\right)} = \frac{\ln(0.5)}{-(2.8 \ s^{-1})} = 0.248 \ s$$