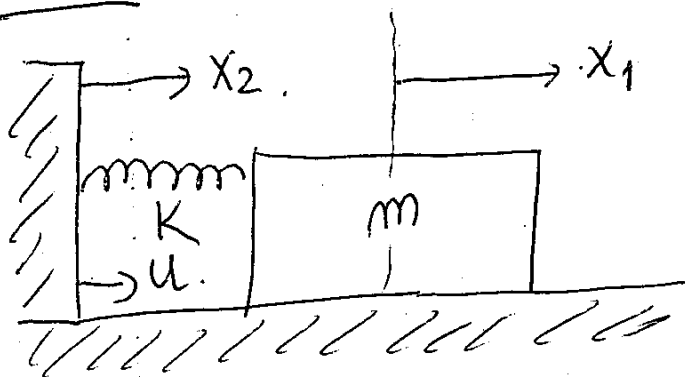


Solution:



The only force acting parallel to the direction of motion is associated with the deformation $(x_1 - x_2)$ of the spring. The equation of motion of the mass m is

therefore:

$$-K(x_1 - x_2) = m \ddot{x}_1$$

Since the displacement of the wall may be written as

$$x_2 = ut.$$

The equation of motion of the mass becomes

$$\boxed{m \ddot{x}_1 + Kx_1 = Ku \cdot t} \quad \text{or} \quad \ddot{x}_1 + \omega_0^2 x_1 = \omega_0^2 ut$$

with $\omega_0^2 = \frac{K}{m}$.