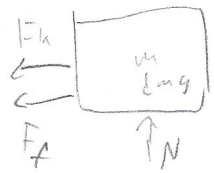
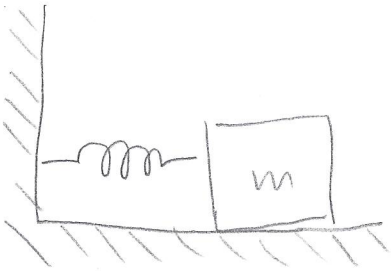
20-R-VIB-DY-26 Beginner

A box of mass $m = 5kg$ is connected to a spring, $k = 200 N/m$ on the wall. The ground has a friction coefficient of $\mu = 0.2$. Given an initial displacement of 0.1 m,

FBD:





?

$F_f > F_k$ at stop

$\mu mg > x(t)k$

$$\frac{\mu mg}{k} > \left(x_0 - \frac{(2n-1)\mu mg}{k}\right)\cos\omega_n t + \frac{\mu mg}{k}(-1)^{n+1}$$

at $\cos\omega_n t = 1, -1$

$n = \frac{1}{2} + i\ (1, 2, \ldots)$