

(a) $\ddot{x} = -\mu g \rightarrow x(t) = -\mu g t^2 + Bt + C$

(b) $\ddot{x} = -\frac{b}{m} \dot{x} \rightarrow \frac{dv}{dt} = -bv \quad v = v_0 e^{-\frac{b}{m}t}$

(c) $\ddot{x} = -\frac{k}{m}x$

$\hookrightarrow \ddot{x} = -\omega^2 x \rightarrow \omega = \sqrt{\frac{k}{m}} = \sqrt{\frac{4}{1}} = 2 \text{ rad/s}$

$x(t) = A \cos \omega t + B \sin \omega t$

$x(0) = 0 \text{ m} = A \cdot 1 + B \cdot 0$

$\dot{x}(0) = 10 \text{ m/s} = \omega B \cdot \cos 0$

$B = \frac{10}{\omega}$

$\frac{d}{dt}(\sin 2t)$
 $= \cos 2t$

$x(t) = \frac{10}{2} \cdot \sin 2t$

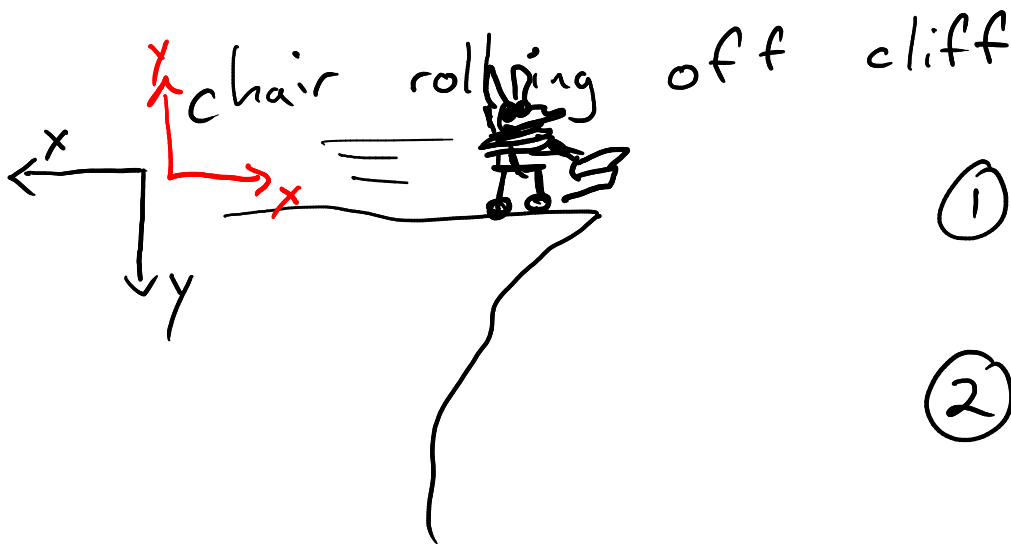
Quiz - 01

- what are important concepts?
- what should we cover in quiz?

① Free Body Diagram

② Kinetic Diagram

③ ① = ② $\iff \vec{F} = m\vec{a}$



① coyote wins
& stops

② roadrunner
wins
& falls

