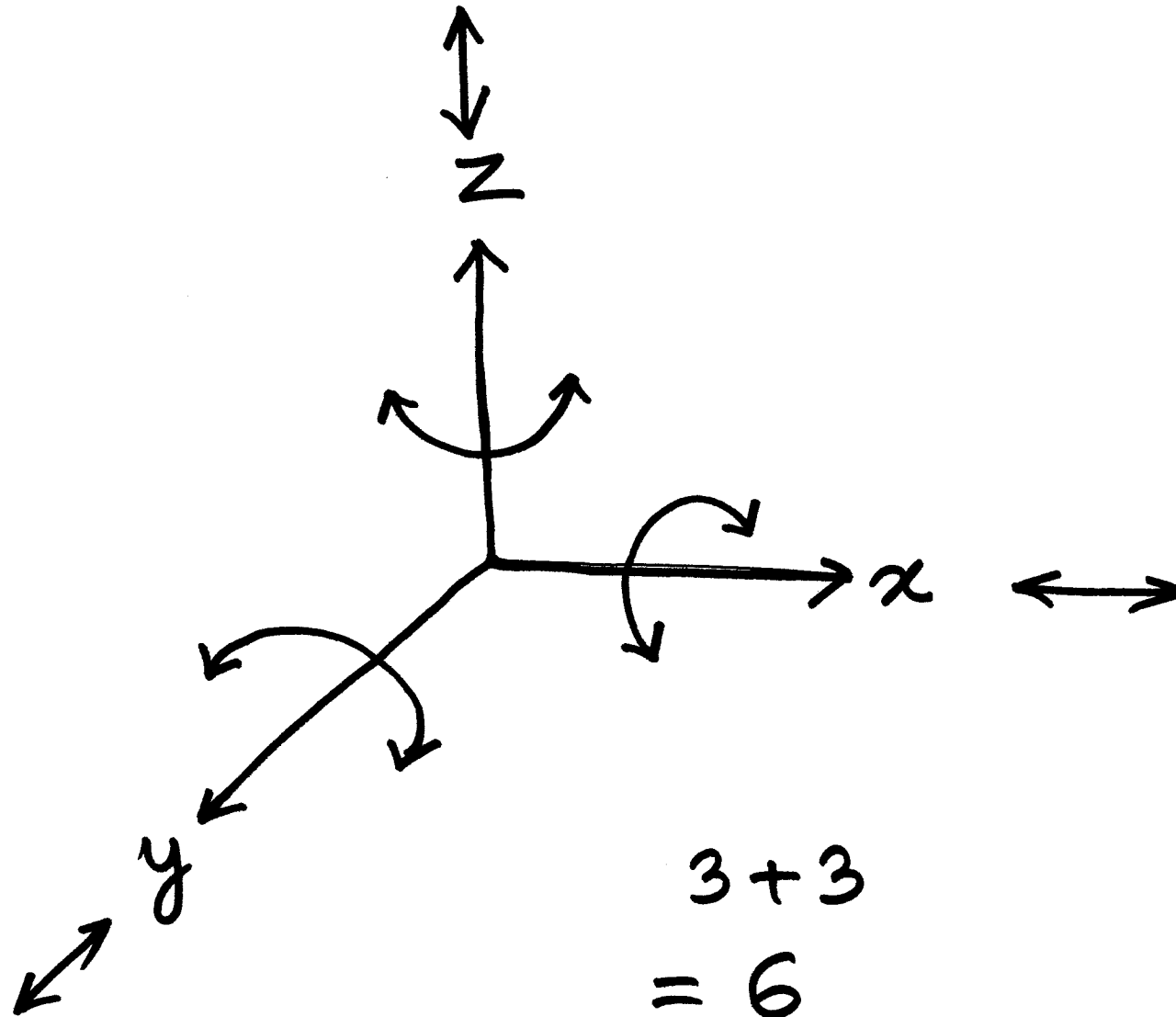
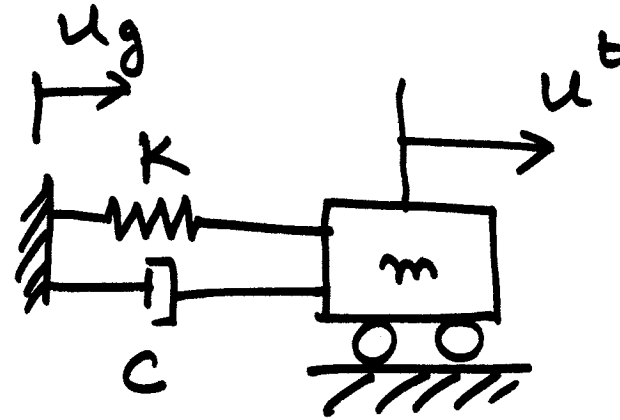
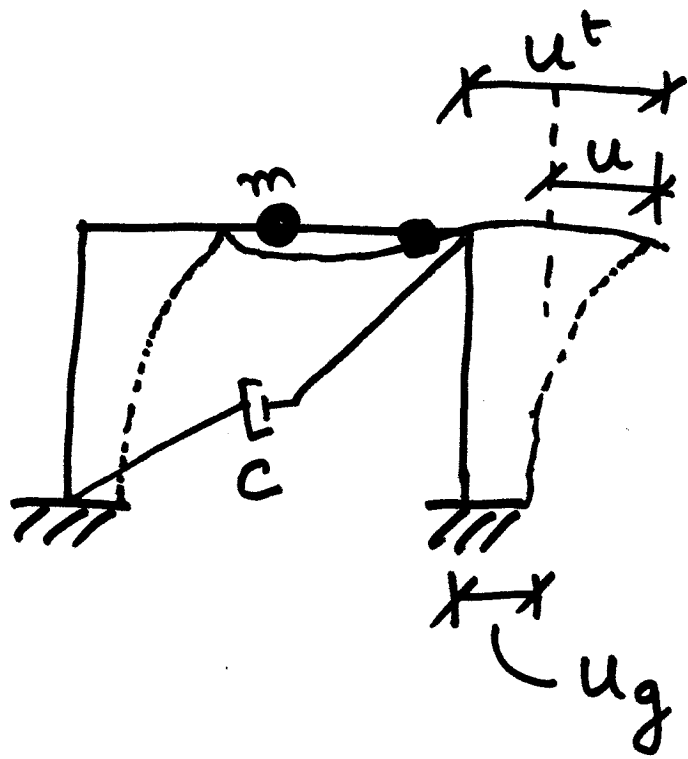






Inertia force $F_I = m \cdot \frac{d^2 u^t}{dt^2} = m \ddot{u}^t$

Spring force $F_s = k(u^t - u_g) = ku$

Damper force $F_D = c \left[\frac{du^t}{dt} - \frac{du_g}{dt} \right] = c \dot{u}$
 $= c \frac{du}{dt}$

$$F_I + F_D + F_S = 0$$

$$\Rightarrow m\ddot{u}^t + c\dot{u} + ku = 0$$

$$\Rightarrow m[\ddot{u} + \ddot{u}_g] + c\dot{u} + ku = 0$$

$$\Rightarrow \boxed{m\ddot{u} + c\dot{u} + ku = -m\ddot{u}_g}$$

Equation of motion

$$u_g(t)$$