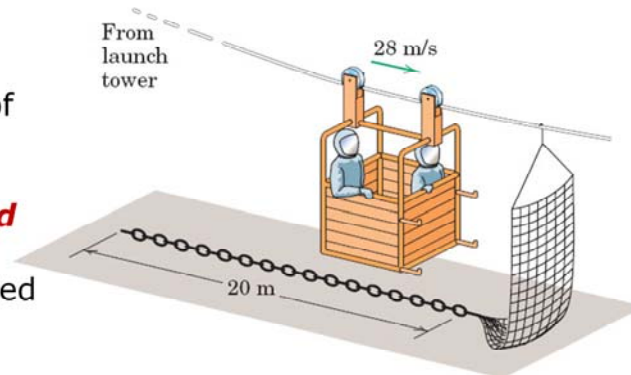


Linear Impulse and Momentum: Exercise 1

The cage and occupants have a combined **mass** of **320 kg** and approach the netting at a **speed** of **28 m/s**. The netting is connected to **20 m** of chain with a **mass** of **18 kg/m** and the **coefficient of kinetic friction** between the chain and ground is **0.70**.



Determine the initial **velocity** v of the chain when the cage engages the net and find the **time** t to bring the cage to a stop.

ME 231: Dynamics

$$3/200 \quad \Delta G = 0; \quad 320(28) - (320 + 20 \times 18)v = 0$$

Initial velocity of chain is $v = 13.18 \text{ m/s}$

$$\int \Sigma F dt = m \Delta v; \quad (20 \times 18) 9.81 (0.7) t = (320 + 20 \times 18)(13.18)$$

$$t = 3.62 \text{ s}$$