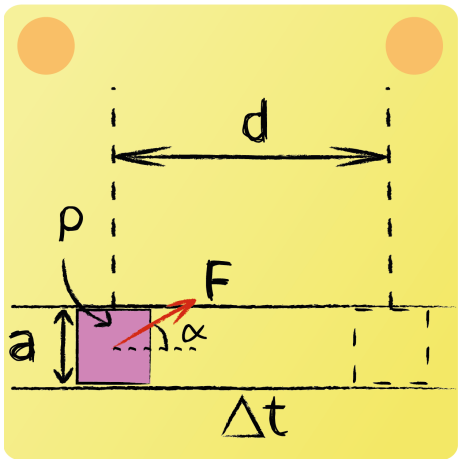
Lecture 01 - Power 01

A cube is being moved by a force F over a horizontal distance d. Give an expression for the power that has to be delivered in order to move the object within Δt seconds.. The angle $\alpha = 30^{\circ}$



Force in x-direction:

$$F_x = F \cdot \cos(30^{\circ}) = \frac{1}{2}\sqrt{3}F$$

Work:

$$W = F_x \cdot d = \frac{1}{2}\sqrt{3}F \cdot d$$

Power:

$$P = \frac{W}{\Delta t} = \frac{1}{2\Delta t}\sqrt{3}F \cdot d$$