

# Physics Homework

Jonathan Ohayon

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**1**

**1.1 a**

$$E_h = mgh = 500 * 10 * 15 = 75,000_J$$
$$\frac{75,000_J}{20_{kW}} = \boxed{3.75_S}$$

**1.2 b**

$$E_h = mgh = 740 * 10 * h / : 7400$$

$$h = \frac{E_h}{7400}$$

$$E_{kW} = 20,000_J$$

$$h = \frac{E_{kW}}{7400} = \frac{20,000}{7400} \boxed{\approx 2.7_m}$$

**2**

$$E_k = \frac{mv^2}{2} = \frac{65 * 108^2}{2} = \frac{65 * 11,664}{2} = 379,080_J$$

$$E_{kW} = P * T$$

$$T = \frac{E_{kW}}{P} = \frac{379,080_J}{250} \boxed{\approx 1,516_{kW_s}}$$