

25 g

Velocity
tangential

$$V = \frac{2\pi r}{T}$$

MCU

$$t = \sqrt{\frac{2h}{g}}$$

$$S = S_0 + V_0 t - \frac{1}{2} g t^2$$

$$\cancel{S} = S_0 + \cancel{V_0 t} - \frac{1}{2} g t^2$$

$$\frac{1}{2} g t^2 = S_0$$

$$g t^2 = 2 S_0$$

$$t^2 = \frac{2 S_0}{g} \quad t = \sqrt{\frac{2 S_0}{g}}$$

$$d = \Delta S = S_A - S_B = V_A t - V_B t = (V_A - V_B) t$$

$$= \frac{2\pi(r_A - r_B)}{T} \cdot \sqrt{\frac{2h}{g}} = \frac{2\pi(50\text{ m} - 0\text{ m})}{1\text{ s}} \cdot \sqrt{\frac{2 \cdot 50\text{ m}}{9,81 \frac{\text{m}}{\text{s}^2}}}$$

$$= \frac{2\pi \cdot 50\text{ m}}{86400} \cdot \sqrt{\frac{100\text{ m}}{9,81 \frac{\text{m}}{\text{s}^2}}} = \frac{2\pi \cdot 50\text{ m}}{86400\text{ s}} \cdot 3,19\text{ s} = 0,115\text{ m}$$

$$= 1,15\text{ cm}$$