



$$\frac{\Delta X_1(T)}{\Delta X_2(T)} = ? \quad (1) \quad (5)$$

ערפרינע

$$\Delta X_1 = \frac{8 \cdot T}{2} = 4T$$

$$\Delta X_2 = \frac{4 \cdot T}{2} = 2 \cdot T$$

$$\frac{\Delta X_1(T)}{\Delta X_2(T)} = \frac{4 \cdot T}{2 \cdot T} = 2$$

$$\Delta X = v_0 \cdot t + \frac{1}{2} a t^2$$

$$\Delta X_1 = 0 \cdot t_1 + \frac{1}{2} \cdot \frac{8}{T} \cdot t_1^2$$

$$\Delta X_1 = \frac{4 t_1^2}{T}$$

$$\Delta X_2 = 0 \cdot t_2 + \frac{1}{2} \cdot \frac{4}{T} \cdot t_2^2$$

$$\Delta X_2 = \frac{2 t_2^2}{T}$$

$$\frac{\Delta t_1(x)}{\Delta t_2(x)} = ? \quad (2)$$

$$\Delta X_1 = \Delta X_2 \quad \text{פילן}$$

$$\frac{4 \cdot \Delta t_1^2}{T} = \frac{2 \cdot \Delta t_2^2}{T}$$

$$2 \cdot (\Delta t_1)^2 = (\Delta t_2)^2$$

$$\frac{\Delta t_1}{\Delta t_2} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \iff \left(\frac{\Delta t_1}{\Delta t_2} \right)^2 = \frac{1}{2}$$

(7) אברהם רבקה רש"ת עזר מרחק של 40 מטר
 (8) " " " " רש"ת " " " 70 מטר

$$\Delta X_{(\Delta t)} = v_0 \cdot \Delta t + \frac{1}{2} a \cdot (\Delta t)^2$$

$$a = ? \quad (1) \\ v_0 = ? \quad (2)$$

$$I) 40 = v_{(2)} \cdot 1 + \frac{1}{2} a \cdot 1^2 \Rightarrow a = 80 - 2v_{(2)}$$

$$II) 70 = v_{(5)} \cdot 1 + \frac{1}{2} a \cdot 1^2 \Rightarrow a = 140 - 2v_{(5)}$$

$$III) v(t) = v_0 + at \Rightarrow \begin{cases} v_{(2)} = v_0 + 2a \\ v_{(5)} = v_0 + 5a \end{cases}$$

$$III \rightarrow I) a = 80 - 2(v_0 + 2a) \Rightarrow 40 - v_0 - 2a = 70 - v_0 - 5a$$

$$III \rightarrow II) a = 140 - 2(v_0 + 5a) \Rightarrow 40 - v_0 - 2a = 70 - v_0 - 5a$$

$$3a = 30 \Rightarrow a = 10 \text{ [m/s}^2]$$

$$10 = 140 - 2v_0 - 10 \cdot 10 \\ a = 10 \quad v_0 = 15 \text{ [m/s]}$$