

$$t_{\text{ges}} = t_1 + t_2$$

$$v_s = 343 \frac{\text{m}}{\text{s}}$$

$$g = 9,81 \frac{\text{m}}{\text{s}^2}$$

$$s_1 = \frac{g}{2} t_1^2$$

$$s_1 = v_s t_2$$

$$s_1 = v_s t_2$$

$$s_1 = s_2$$

$$t_{\text{ges}} = 3 \text{ s} \\ = 4 \text{ s}$$

$$t_1 = 2,881282 \text{ s} \\ = 3,87941402$$

$$t_2 = 0,1187179 \text{ s} \\ = 0,2058598 \text{ s}$$

$$\frac{g}{2} t_1^2 = v_s t_2$$

$$t_2 = t_{\text{ges}} - t_1$$

$$s = \text{~~37,3~~} \\ = 40,72 \text{ m} \\ = 70,61 \text{ m}$$

$$\frac{g}{2} t_1^2 = v_s (t_{\text{ges}} - t_1)$$

$$\frac{g}{2} t_1^2 = v_s t_{\text{ges}} - v_s t_1$$

$$\frac{g}{2} t_1^2 + v_s t_1 - v_s t_{\text{ges}} = 0$$

$$t_1^2 + \frac{2v_s}{g} t_1 - \frac{2v_s}{g} t_{\text{ges}} = 0$$

$$t_{1,2} = -\frac{v_s}{g} \pm \sqrt{\frac{v_s^2}{g^2} + \frac{2v_s}{g} t_{\text{ges}}} = -\frac{343 \frac{\text{m}}{\text{s}}}{9,81 \frac{\text{m}}{\text{s}^2}}$$

$$= -34,96 + \sqrt{1222,5 + 69,92 \cdot 3}$$

$$= \text{~~2,881282~~} 2,881282 \text{ s}$$

$$= 3,87941402$$

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