$\mathbf{ORIGIN} := 1$

$S := 15\ \mathbf{m}$ $\quad mass := 1\ \mathbf{kg}$ $\quad \Delta s := \frac{S}{10} = 1.5\ \mathbf{m}$ $\quad x_0 := 0\ \mathbf{m}$ $\quad x_{10} := 10\ \mathbf{m}$ $\quad y_0 := 7\ \mathbf{m}$ $\quad y_{10} := 10\ \mathbf{m}$

$PE(x, y) := g \cdot mass \cdot \sum_{i=1}^{9} y_i$ Why we cannot have here only one argument y?

Guess values

$i := 1 .. 9$ $\quad x_i := i \cdot \mathbf{m}$ $\quad y_i := y_0$ Why we cannot do it in Solve-block?

$$S = \sqrt{(x_0 - x_1)^2 + (y_0 - y_1)^2} + \sum_{i=2}^{9} \sqrt{(x_{i-1} - x_i)^2 + (y_{i-1} - y_i)^2} + \sqrt{(x_9 - x_{10})^2 + (y_9 - y_{10})^2}$$

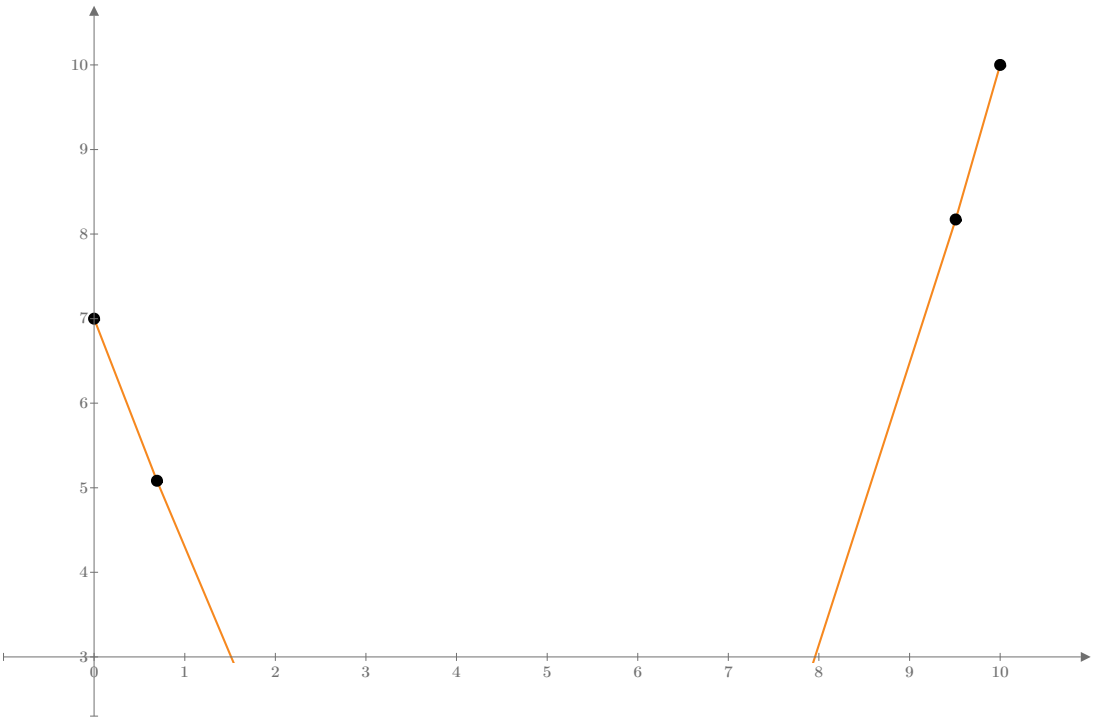
$$\Delta s = \sqrt{(x_0 - x_1)^2 + (y_0 - y_1)^2} \qquad \sum_{i=2}^{9} \left\{ \Delta s = \sqrt{(x_{i-1} - x_i)^2 + (y_{i-1} - y_i)^2} \right\} = 8 \qquad \Delta s = \sqrt{(x_9 - x_{10})^2 + (y_9 - y_{10})^2}$$

$$\begin{bmatrix} x \\ y \end{bmatrix} := \mathbf{Minimize}(PE, x, y)$$

Why we have here wrong answer? See please below the correct answer with verify!

$\text{stack}\langle y_0, y, y_{10}\rangle \quad (\mathbf{m})$

$\text{stack}\langle y_0, y, y_{10}\rangle \quad (\mathbf{m})$



$\text{stack}\langle x_0, x, x_{10}\rangle \quad (\mathbf{m})$

$$\sqrt{\left(x_1 - x_0\right)^2 + \left(y_1 - y_0\right)^2} + \sum_{i=2}^{9} \sqrt{\left(x_i - x_{i-1}\right)^2 + \left(y_i - y_{i-1}\right)^2} + \sqrt{\left(x_{10} - x_9\right)^2 + \left(y_{10} - y_9\right)^2} = 30.887 \ \textbf{m}$$

$$\Delta s = \sqrt{\left(x_1 - x_0\right)^2 + \left(y_1 - y_0\right)^2} = 0$$

$$\sum_{i=2}^{9} \left\{ \Delta s = \sqrt{\left(x_i - x_{i-1}\right)^2 + \left(y_i - y_{i-1}\right)^2} \right\} = 8 = 0$$

$$\Delta s = \sqrt{\left(x_{10} - x_9\right)^2 + \left(y_{10} - y_9\right)^2} = 0$$

Guess values $i := 1 .. 9$ $x_i := i \cdot m$ $y_i := y_0$

$$S = \sqrt{(x_1 - x_0)^2 + (y_1 - y_0)^2} + \sum_{i=2}^{9} \sqrt{(x_i - x_{i-1})^2 + (y_i - y_{i-1})^2} + \sqrt{(x_{10} - x_9)^2 + (y_{10} - y_9)^2}$$

$$\Delta s = \sqrt{(x_1 - x_0)^2 + (y_1 - y_0)^2} \qquad \Delta s = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \qquad \Delta s = \sqrt{(x_3 - x_2)^2 + (y_3 - y_2)^2}$$

$$\Delta s = \sqrt{(x_4 - x_3)^2 + (y_4 - y_3)^2} \qquad \Delta s = \sqrt{(x_5 - x_4)^2 + (y_5 - y_4)^2} \qquad \Delta s = \sqrt{(x_6 - x_5)^2 + (y_6 - y_5)^2}$$

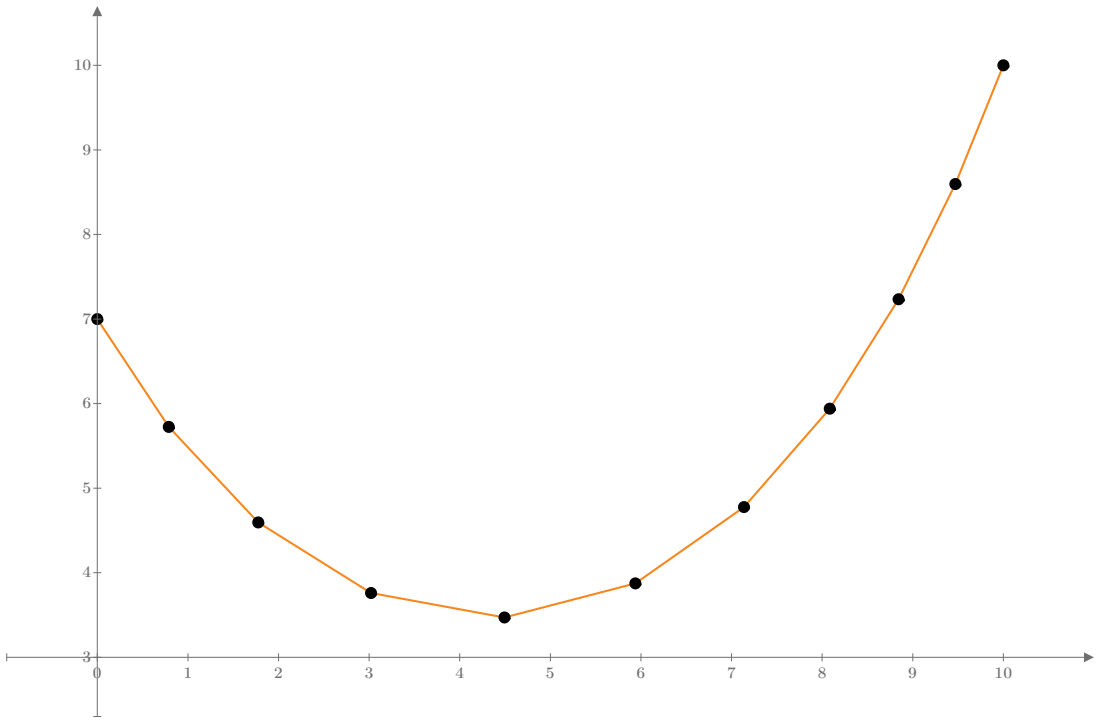
$$\Delta s = \sqrt{(x_7 - x_6)^2 + (y_7 - y_6)^2} \qquad \Delta s = \sqrt{(x_8 - x_7)^2 + (y_8 - y_7)^2} \qquad \Delta s = \sqrt{(x_9 - x_8)^2 + (y_9 - y_8)^2}$$

$$\Delta s = \sqrt{(x_{10} - x_9)^2 + (y_{10} - y_9)^2}$$

$$\begin{bmatrix} x \\ y \end{bmatrix} := \text{Minimize}(PE, x, y)$$

$\text{stack}(y_0, y, y_{10})$ (m)

$\text{stack}(y_0, y, y_{10})$ (m)



$\text{stack}(x_0, x, x_{10})$ (m)

$$S = \sqrt{\left(x_0 - x_1\right)^2 + \left(y_0 - y_1\right)^2} + \sum_{i=2}^{9} \sqrt{\left(x_{i-1} - x_i\right)^2 + \left(y_{i-1} - y_i\right)^2} + \sqrt{\left(x_9 - x_{10}\right)^2 + \left(y_9 - y_{10}\right)^2} = 1$$

$$\Delta s = \sqrt{\left(x_0 - x_1\right)^2 + \left(y_0 - y_1\right)^2} = 1$$

$$\sum_{i=2}^{9} \left(\Delta s = \sqrt{\left(x_{i-1} - x_i\right)^2 + \left(y_{i-1} - y_i\right)^2} \right) = 8 = 1$$

$$\Delta s = \sqrt{\left(x_9 - x_{10}\right)^2 + \left(y_9 - y_{10}\right)^2} = 1$$