

$$\nabla_w = \langle 3x^2, 3y^2, 3z^2 \rangle$$

$$\rightarrow 3x + 3y + 3z = 108$$

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mean of shortest path (1)

$$\Delta t = \frac{1}{c} \left( \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}} - 1 \right) \approx \frac{1}{c} \left( 1 + \frac{1}{2} \frac{v^2}{c^2} - 1 \right) = \frac{1}{2} \frac{v^2}{c^2}$$

mean of shortest path (2)

$$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}$$

$$A = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix} \quad b = \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}$$

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