

$$\frac{mc^2}{\sqrt{1-v^2/c^2}} - mc^2 = \gamma mc^2 - mc^2 = E_c (\text{rel.}) = \text{Energie cinétique relativiste} = \text{Travail de la force relativiste}$$

$$E_c = \frac{1}{2} mv^2$$

## Raisonnement d'Einstein

$$\gamma mc^2 = \left(1 + \frac{1}{2}\right) mc^2 \qquad \beta = 1$$

$$\gamma mc^2 = mc^2 - \frac{1}{2} mc^2$$

$$\gamma mc^2 = mc^2 - \frac{1}{2} m\mathbf{v}^2 \qquad \frac{1}{2} m\mathbf{v}^2 = E_c (\text{rel.}) = \frac{mc^2}{\sqrt{1-v^2/c^2}} - mc^2$$

$$\gamma mc^2 = mc^2 - E_c$$

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$$E = E_0 + E_c$$

$$E \text{ total} = E \text{ repos} + E \text{ cinétique} = \gamma mc^2 = mc^2 + E_c$$

$$E_0 = E - E_c$$

$$mc^2 = \gamma mc^2 - E_c$$

$$E_0 = mc^2$$