10. (a) We solve Eq. 38-13 for v and then plug in:

$$\begin{aligned} v &= c\sqrt{1-\left(\frac{L}{L_0}\right)^2} \\ &= (299792458\,\text{m/s})\sqrt{1-\left(\frac{1}{2}\right)^2} \\ &= 259627884\ \text{m/s} \end{aligned}$$

which may also be expressed as $v = 0.8660254c$.

(b) The Lorentz factor in this case is $\gamma = \frac{1}{\sqrt{1-(v/c)^2}} = 2$ "exactly."