

Clicker Exercise

A “light clock”, described in the class, has proper length L_0 . It keeps on tic-tac. In the ground frame, the clock is flying at $v = 0.6c$ along the clock axis direction.

How long does it take the light signal to travel from the source to the mirror in the frame comoving with the clock?

- (a) $\frac{L_0}{0.6c}$
- (b) $\frac{L_0}{0.8c}$
- (c) $\frac{0.6L_0}{0.8c}$
- (d) $\frac{0.8L_0}{0.6c}$
- (e) $\frac{L_0}{c}$
- (f) $\frac{0.8L_0}{0.4c}$
- (g) $\frac{0.8L_0}{1.6c}$

How long does it take the light to travel from the source to the mirror in the ground frame?

- (a) $\frac{L_0}{0.6c}$
- (b) $\frac{L_0}{0.8c}$
- (c) $\frac{0.6L_0}{0.8c}$
- (d) $\frac{0.8L_0}{0.6c}$
- (e) $\frac{L_0}{c}$
- (f) $\frac{0.8L_0}{0.4c}$
- (g) $\frac{0.8L_0}{1.6c}$

How long does it take the light to travel back to the sensor from the mirror in the ground frame?

- (a) $\frac{L_0}{0.6c}$
- (b) $\frac{L_0}{0.8c}$
- (c) $\frac{0.6L_0}{0.8c}$
- (d) $\frac{0.8L_0}{0.6c}$
- (e) $\frac{L_0}{c}$
- (f) $\frac{0.8L_0}{0.4c}$
- (g) $\frac{0.8L_0}{1.6c}$