Q- A certain star is 18.6 light years away. How long would it take a space craft travelling at 0.950c to reach that star from earth as observed (a) on earth (b) on the spacecraft.

(a) For the observer on earth the time taken by the space craft to reach the star will be the actual time and is given by

$$\Delta t = \frac{d}{v} = \frac{18.6*9.460*10^{15}m}{0.950*3*10^{8}\,m/s} = 6.17 * 10^{8}s \approx 19.58\,years$$

(b) In a moving reference frame the time appear to be deleted and thus the clock will read less time given by

$$\Delta t_0 = \Delta t\sqrt{1 - \frac{(0.950c)^2}{c^2}} = 6.17 * 10^{8}\sqrt{1 - (0.950)^2}$$

Or $\Delta t = 1.92 * 10^{8}s \approx 6.11\,years$