Q4. A rocketship is 50m long. When it is on flight its length appears to be 49.5 to an observer on ground. Find the speed of the rocket?

Given:- l =49.5m; l_0=50m

Formula:- $l = l_0\sqrt{1-\frac{v^2}{c^2}}$

Solution:- $49.5 = 50\sqrt{1-\frac{v^2}{c^2}}$

$1-\frac{v^2}{c^2}$=0.9801

v=0.141c

Ans:- The speed of the rocket is 0.141c .