Q2. A meter ruler moves past an observer on the earth with a velocity of 2.5 $\times 10^{10}$ cm/ sec, along the direction of its length. What is its apparent length with respect to the observer?

Given:- $l_0 = 1.0\text{m}$; $v = 2.5 \times 10^8 \text{m/s}$

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

Solution :- $l = 1.0\sqrt{1 - \left(\frac{2.5 \times 10^8}{3 \times 10^8}\right)^2} = 55.27\text{cm}$

Ans:- The apparent length of the moving ruler is 55.27cm.