**Q7.** A wrist watch keeps correct time on earth. If it is worn by pilot in spaceship, leaving earth with constant velocity of 109 cm/sec. How many seconds does it appear to lose in one day with respect to the observer on the Earth.

**Given:- v=**109 cm/sec =107 m/sec; t = 24 hrs in a day

**Formula:-**

**Solution:-** 24=

24[1-]-1/2

Here, 1/900 is very small w.r.t 1 hence we can use the binomial expansion and neglect higher order terms

24 [1-] = 24- hrs

hence loss in 24 hours==48 sec

**Ans:- wrist watch looses 48 sec in a day with respect to observer on earth.**