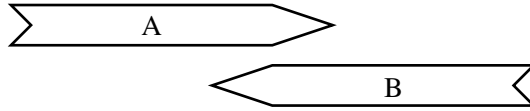


[mex208] Who passes more quickly?

Spaceships  $A$  and  $B$ , each having proper length  $\ell_0 = 100\text{m}$ , pass each other moving in opposite direction with relative velocity of  $v_r = 7 \times 10^7\text{m/s}$ . Each spaceship has synchronized clocks at both ends, front and rear.

According to clocks in spaceship  $B$  (A) the time it takes the front end of spaceship  $A$  to pass the entire length of spaceship  $B$  is  $t_1^B$  ( $t_1^A$ ) and the time it takes the entire length of spaceship  $A$  to pass the front end of spaceship  $B$  is  $t_2^B$  ( $t_2^A$ ). Determine these four times.



**Solution:**