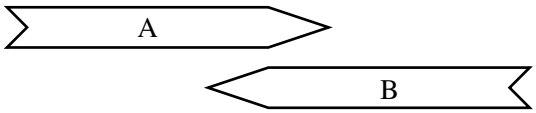
[mex208] Who passes more quickly?

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. The crew in each spaceship measures the time it takes the other spaceship to pass. In spaceship A, they measure the time t_A it takes the front end of spaceship B to move between the clocks at their front and at their rear. In spaceship B they measure the time t_B it takes the entire spaceship A to pass the clock at their front. Which spaceship passes more quickly? What are the two times in nanoseconds?



Solution: