[lex161] Time on the fly

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

The clocks at the front end of spaceship A and at the rear end of spaceship B happen to strike noon simultaneously, $t_{Af} = t_{Br} = 12 : 00 : 00.000000000$, when they are opposite one another. What are the readings t_{Ar} of the clock at the rear end of spaceship A and t_{Bf} of the clock at the front end of spaceship B when they are opposite each other? Express your answers to nanosecond precision

Solution: