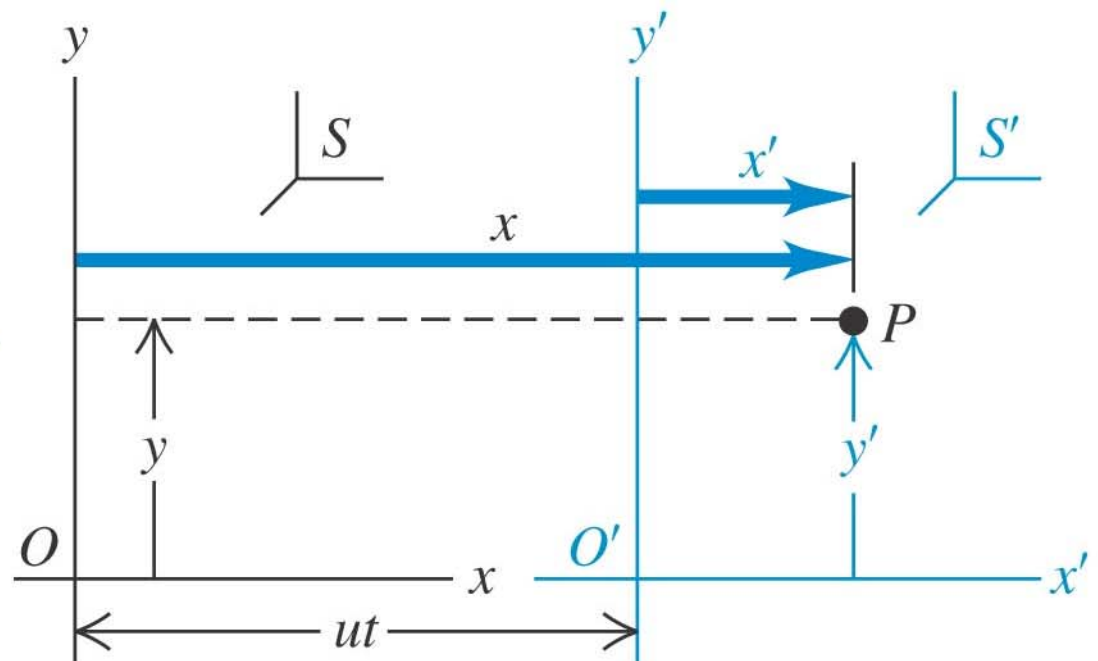


Frame S' moves relative to frame S with constant velocity u along the common x - x' -axis.

Origins O and O' coincide at time $t = 0 = t'$.





Samir is standing on the ground while Maria flies past him in her spaceship at a speed of $0.6c$. Both Maria and Samir have clocks that they measure as ticking once every second. As measured by Maria, what is the time between ticks on Samir's clock?

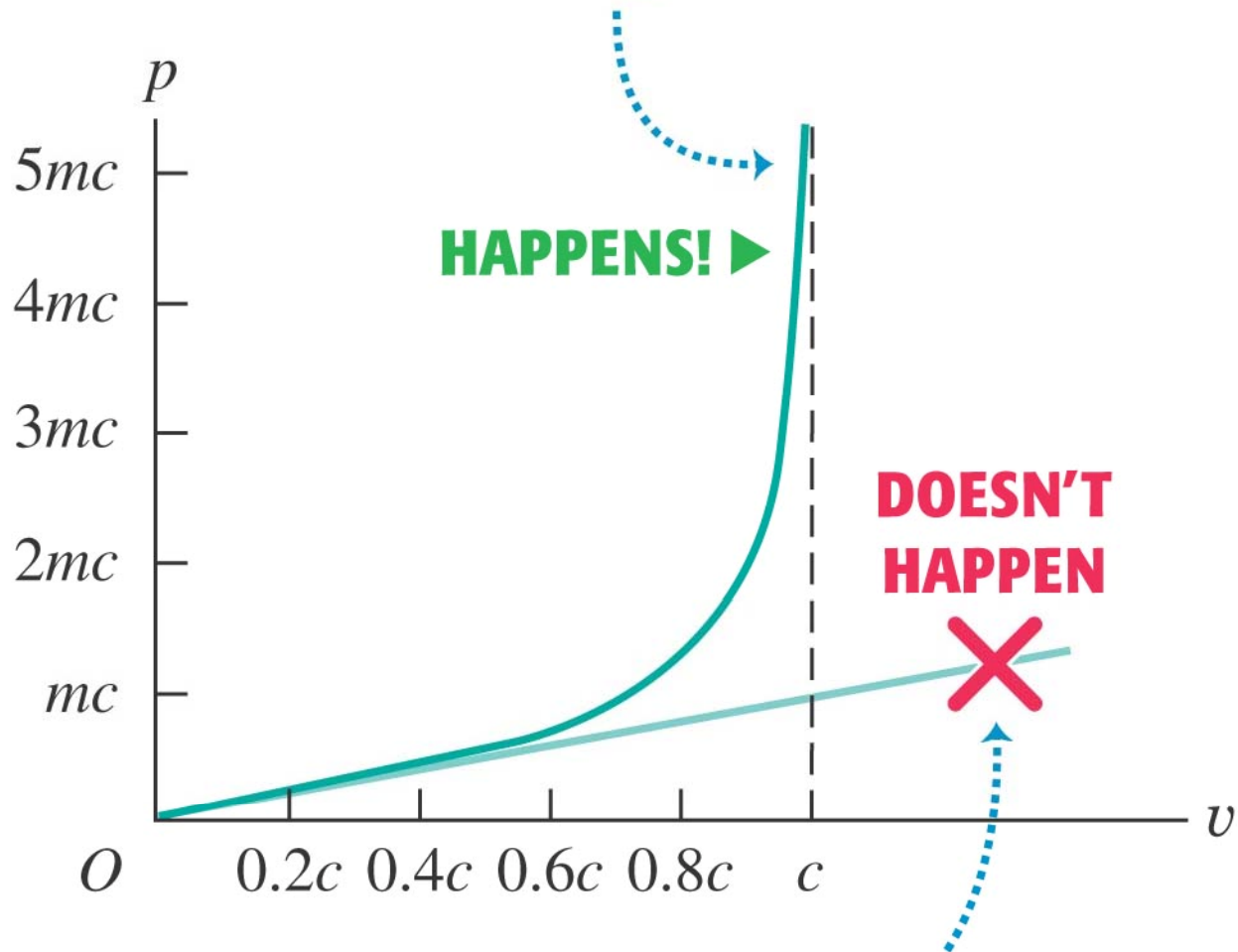
- A. More than 1.0 s
- B. 1.0 s
- C. Less than 1.0 s but more than 0.0 s
- D. 0.0 s
- E. Not enough information is given.



A spaceship moving away from the earth with speed $0.6\,c$ fires a robot space probe in the same direction as its motion, with speed $0.3\,c$ relative to the spaceship. What is the probe's velocity relative to the earth?

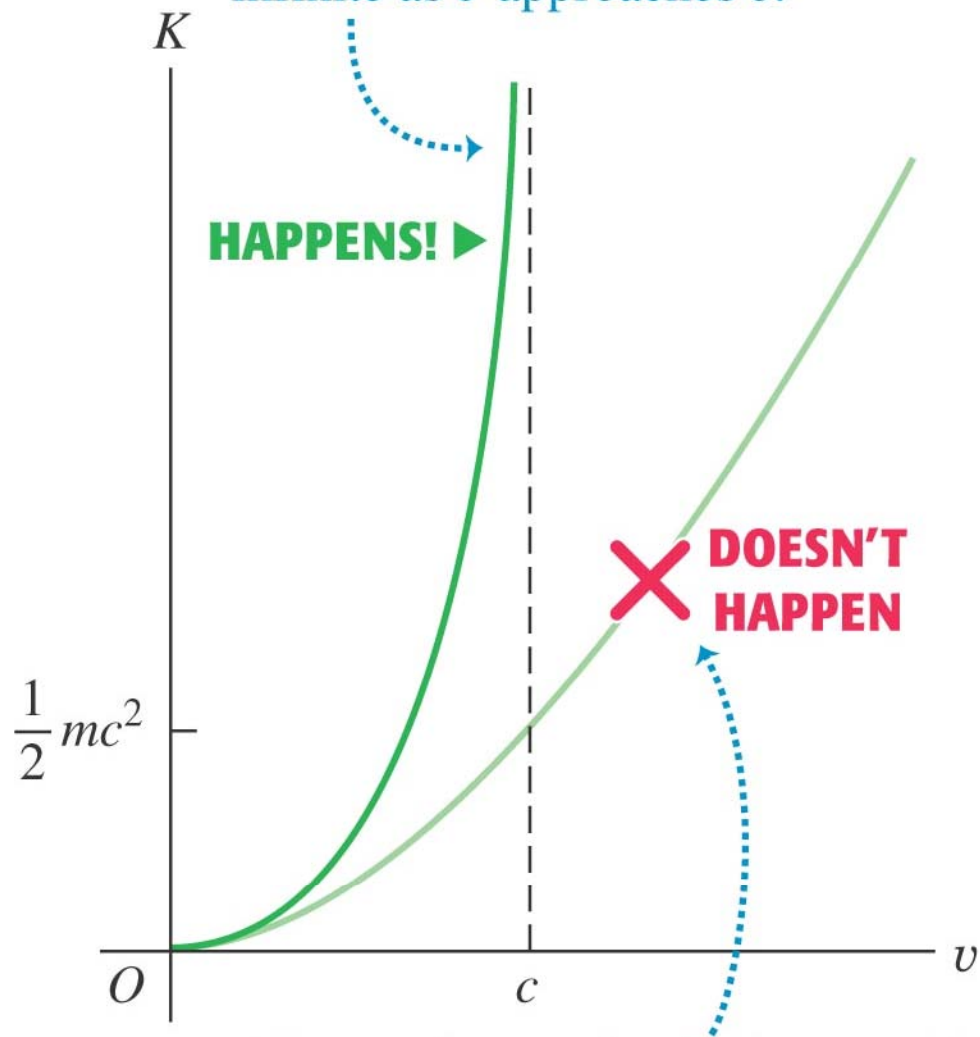
- A. More than $0.9\,c$
- B. $0.9\,c$
- C. Less than $0.9\,c$ but more than $0.3\,c$
- D. $0.3\,c$
- E. zero

Relativistic momentum becomes infinite as v approaches c .



Newtonian mechanics incorrectly predicts that momentum becomes infinite only if v becomes infinite.

Relativistic kinetic energy becomes infinite as v approaches c .



Newtonian mechanics incorrectly predicts that kinetic energy becomes infinite only if v becomes infinite.