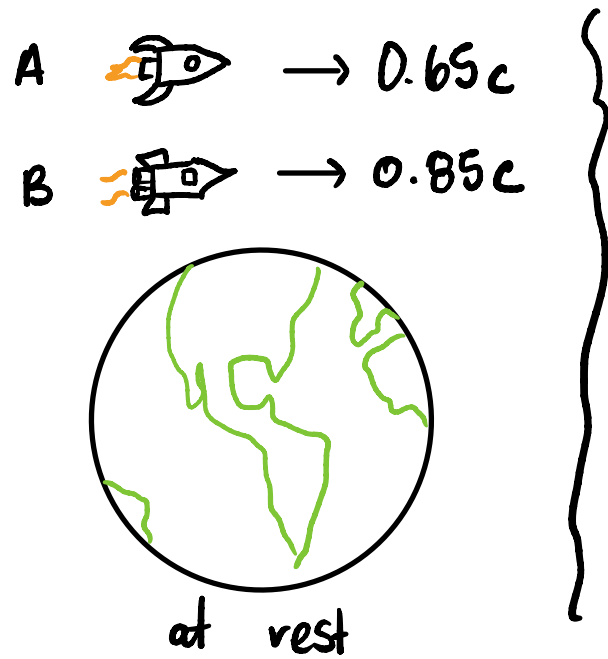


## Ch. 36 – 76

76. Rocket A passes Earth at a speed of  $0.65c$ . At the same time, rocket B passes Earth moving  $0.85c$  relative to Earth in the same direction. How fast is B moving relative to A when it passes A?

# Ch. 36 - 76



F

$0.20c$

New reference frame

O

$u_x$

$-0.65c$

$u'_x = 0.85c$

Space ship

$\rightarrow x$

36-7a

$$u_x = \frac{(u'_x + v)}{\left(1 + \frac{vu'_x}{c^2}\right)}$$

$$= \frac{(0.85c - 0.65c)}{1 + \frac{(-0.65)(0.85)c^2}{c^2}}$$

$$= 0.45c$$