

Physics 267: Problem #7

Two spaceships are traveling towards the earth from opposite directions. The first travels at  $0.8c$  and the second at  $0.5c$ . In the reference frame of each ship, how fast is the earth approaching? How fast does spaceship 1 see spaceship 2 moving? How fast does spaceship 2 see spaceship 1 moving?

Consider the earth's frame as the reference frame. Draw a Minkowski diagram with axes for both spaceships' reference frame.