/ 15

Name : _____
Date : _____

Special Relativity Quiz (Ver 1)

Answer the following questions in the space provided

/ 4 1. A spacecraft is travelling at 0.75c (i.e. 75% of the speed of light). If the passengers on the spacecraft measure their time away from earth to be 7 years, how much time has passed for the people on earth?

/ 7 2a. A spacecraft is travelling at 0.90c (i.e. 90% of the speed of light). If the passengers on the spacecraft measure their time away from earth to be 10 years, how much time has passed for the people on earth?
2b. How fast would the spacecraft need to travel (as a function of the speed of light) if the passengers wanted the time factor to be 20 (i.e. if 1 year passed on the spacecraft, 20 years would pass on earth).

/ 4 3. A space craft is travelling past earth at 1.5×10^8 m/s (i.e. 0.50c relative to the earth) when it fires a particle beam at 2.7×10^8 m/s (i.e. 0.9c relative to the space craft) from the front of the space craft. What is the relative velocity of the particle beam with respect to the earth?