HW3

Reading assignment: Mr Tompkins Handout.
Optional Reading assignment: Feynman sections 3.3, 3.4, 3.5, 3.6 (Mostly what we did in class).
For the problems below, please show all work!

1. Continue work on HW2 if you did not turn it in.

2. (OPTIONAL) Following Feynman section 4.3, derive the relativistic addition of velocity formula.

3. (a) Draw a curve of the relativistic factor γ for $v = -.99999c$ to $v = .99999c$ (γ on the vertical y-axis and v on the horizontal x-axis). Suppose you drive to the store at a speed $v = 99.9km/hour$ (recall speed of light is where $c = 3 \times 10^8 m/s$), (a) provide an order of magnitude estimte for how much slower your watch is running when you get to the store if the store is $10km$ away. (b) If the speed of light were $c = 100km/hour$, estimate how much slower your watch is running? (Hint: Time is realative! To answer this question think of the situation from the store clerk's point of view. Reading Mr. Tomkins will be very helpful too.).