

*Physics 853 Quiz #1 - Friday, Sep. 7, 2012*

1. Consider two flashes from space-time points separated by  $r^\alpha$ . An observer is moving with four-velocity  $u^\alpha$ .
  - (a) Find the time between the two flashes as determined by the moving observer. Express your answer as a Lorentz invariant.
  - (b) Find the distance between the two flashes as determined by the moving observer. Again, express your answer as a Lorentz invariant.