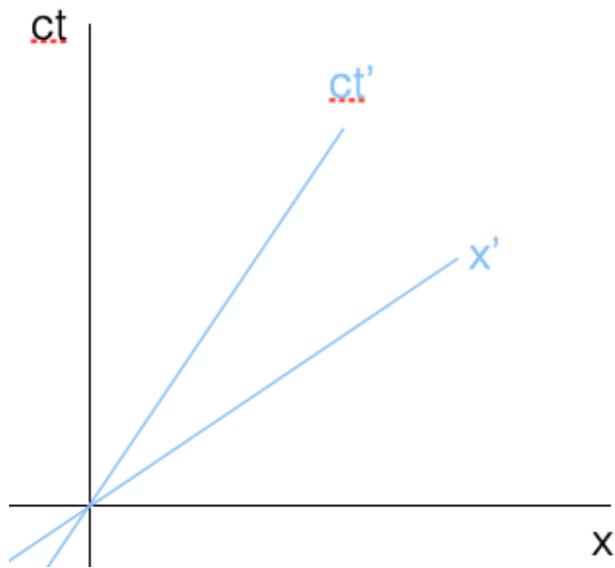


# 1 Relativistic Right Angles



- (a) Draw two spacetime vectors, one on the  $ct'$  axis and one on the  $x'$  axis.
- (b) Write these vectors as column matrices with the primed coordinates. (You can choose numbers or do it generally with variables.)
- (c) Take the dot product between these two vectors. What is the result? What does it mean?
- (d) How would an observer in the unprimed frame write these columns? (Hint: Lorentz Transformation.)
- (e) Take the dot product between these two vectors. What is the result? What does it mean?