ANNOUNCEMENTS

- What's left?
  - Quiz 7 (Due Apr. 20)
  - Homework 13 (Due Apr. 20)
  - If we finish early, we finish early.

With Einstein's velocity addition rule,

$$u = \frac{u' + v}{1 + \frac{u' v}{c^2}}$$

what happens when v is very small compared to c?

A. $u \to 0$
B. $u \to c$
C. $u \to \infty$
D. $u \approx u' + v$
E. Something else

With Einstein's velocity addition rule,

$$u = \frac{u' + v}{1 + \frac{u'v}{c^2}}$$

what happens when u' is c?

A. $u \to 0$

B. $u \to c$

C. $u \to \infty$

D. $u \approx u' + v$

E. Something else

With Einstein's velocity addition rule,

$$u = \frac{u' + v}{1 + \frac{u'v}{c^2}}$$

what happens when v is c?

A. $u \to 0$

B. $u \to c$

C. $u \to \infty$

D. $u \approx u' + v$

E. Something else

I have seen the Einstein summation notation before:

$$\mathbf{a} \cdot \mathbf{b} \equiv a_\mu b^\mu$$

A. Yes and I'm comfortable with it
B. Yes, but I'm just a little rusty with it
C. Yes, but I don't remember it it all
D. Nope

True or False: The dot product (in 3 space) is invariant to rotations.

$$\mathbf{a} \cdot \mathbf{b} \equiv a_\mu b^\mu$$

A. True
B. False
C. No idea

Displacement is a defined quantity

$$\Delta x^{\mu} \equiv \left(x^{\mu}_{A} - x^{\mu}_{B}\right)$$

Is the displacement a contravariant 4-vector?

A. Yes
B. No
C. Umm...don't know how to tell
D. None of these.

Be ready to explain your answer.

The displacement between two events Δx^μ is a contravariant 4-vector.

Is $5\Delta x^\mu$ also a 4-vector?

A. Yes
B. No