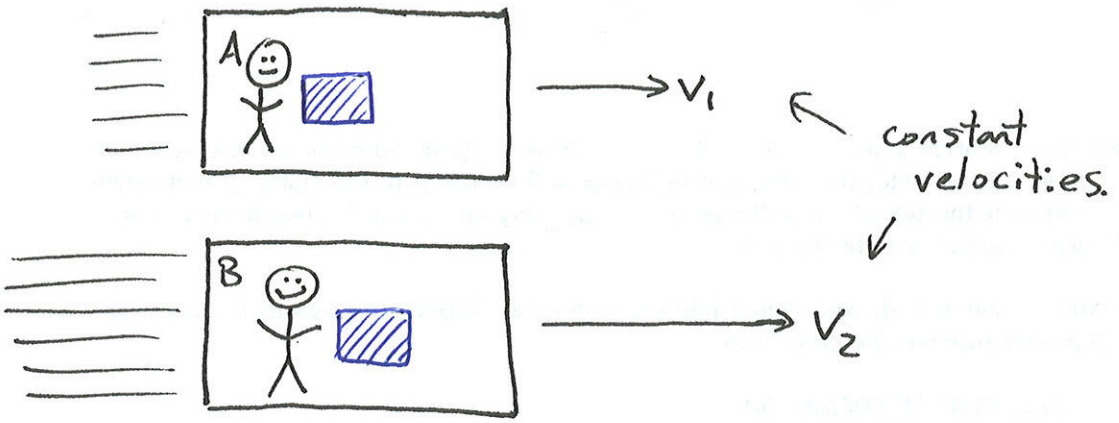
(1)



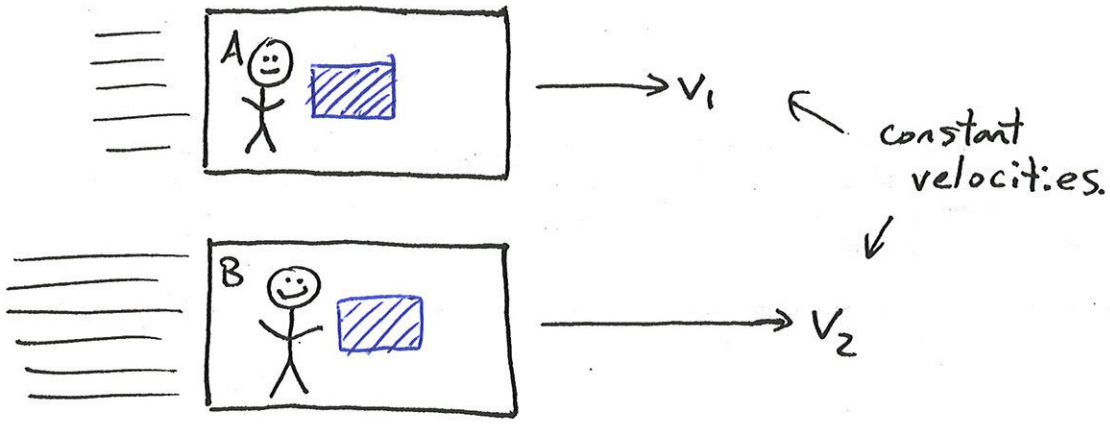
Al and Betty are hurtling through space in windowless spacecrafts. Is there an experiment that Al and Betty could each perform that would ~~field~~ indicate that Betty is traveling faster? (i.e. it would yield a larger result for Betty than for Al).

A) Yes

B) No

(be prepared to explain your answer)

(1)



Al and Betty are hurtling through space in windowless spacecrafts. Is there an experiment that Al and Betty could each perform that would ~~[illegible]~~ indicate that Betty is traveling faster? (i.e. it would yield a larger result for Betty than for Al).

A) Yes

B) No

(be prepared to explain your answer)

Any experiment performed by A and B will give identical results since the laws of physics are the same in both frames.

② Which of the following assumptions did we make in our analysis of the uniformly charged wire scenario?

A) That the two observers agree on times.

B) That the two observers agree on distances.

C) That the two observers agree on charges

D) Both B and C

E) All of the above.

(2) Which of the following assumptions did we make in our analysis of the uniformly charged wire scenario?

A) That the two observers agree on times.

B) That the two observers agree on distances.

C) That the two observers agree on charges

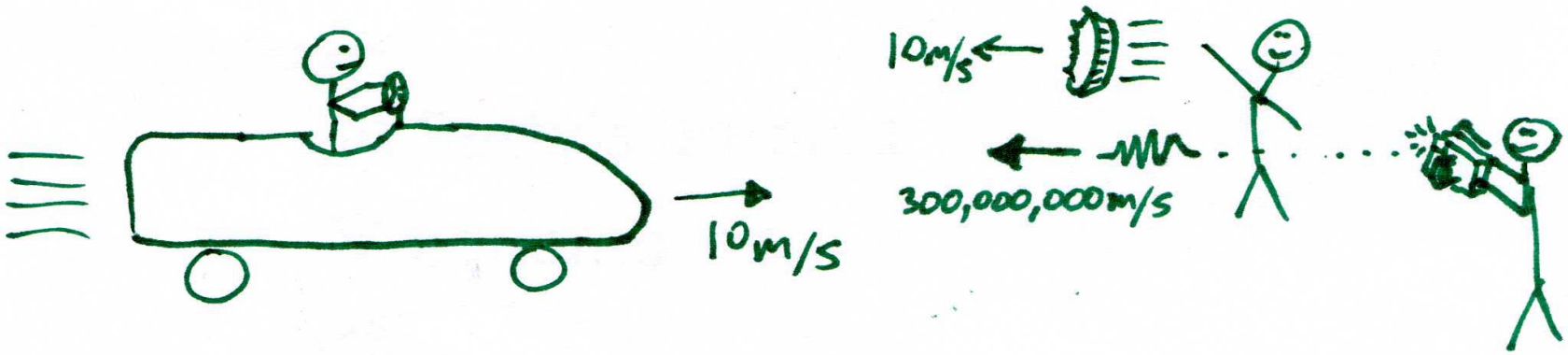
D) Both B and C

(E) All of the above.

times → assumed acceleration $\frac{d^2x}{dt^2}$ same

charges, distances → assumed charge density $\frac{\Delta Q}{\Delta L}$ same for both.

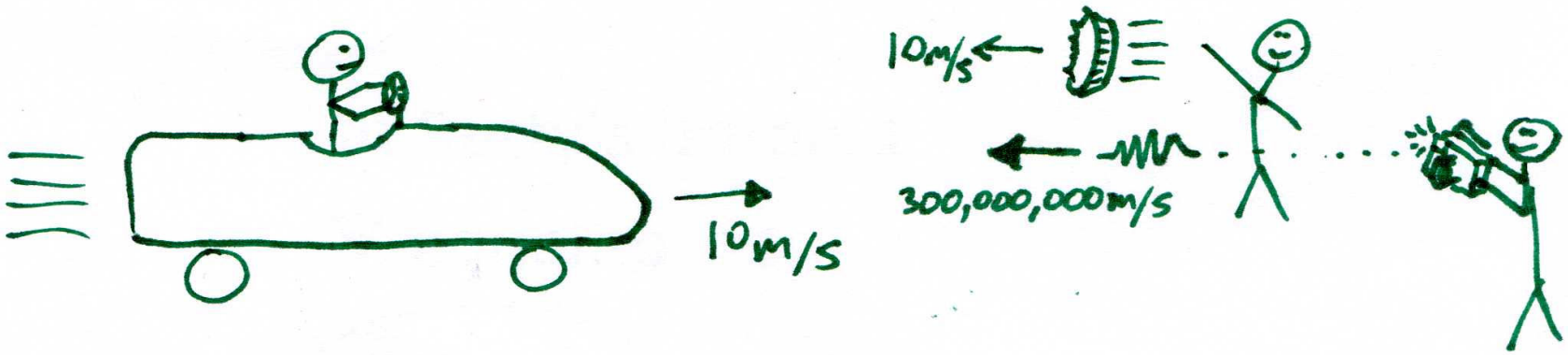
& assumed charge on particle was the same



Ke$ha is driving home from her Vancouver concert at 10m/s. A "fan" on the sidewalk throws a pie in her direction, also at 10m/s while another fan takes a photo, with the flash sending light towards her at 300,000,000m/s (both as measured in the frame of reference of the road). According to Einstein, in Ke$ha's frame of reference,

A) The pie hits Ke$ha at 20m/s and the light hits Ke$ha at 300,000,010 m/s
B) The pie hits Ke$ha at 20m/s and the light hits Ke$ha at 300,000,000 m/s
C) The pie hits Ke$ha at 10m/s and the light hits Ke$ha at 300,000,010 m/s
D) The pie hits Ke$ha at 10m/s and the light hits Ke$ha at 300,000,000 m/s

Choose the answer which is most nearly correct.



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D) The pie hits Ke$ha at 10m/s and the light hits Ke$ha at 300,000,000 m/s

Choose the answer which is most nearly correct.