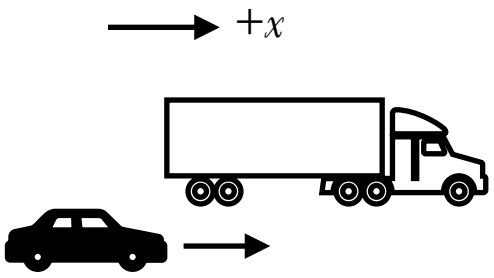
Alternate Homework Week 1

1. A car is driving at 23m/s when the driver decides to pass a truck. The car speeds up to 26m/s with constant acceleration, and it travels from the back of the truck to the front of the truck in 4.5 seconds.



a. Draw a diagram and fill in the table below with what is known.

Δx	
v_i	
v_f	
a	
Δt	

b) Find the acceleration of the car during this interval.

c) Extra Credit: How long is the truck? (+1, no partial credit)

2. I <u>throw</u> a ball down towards the ground from the top of a tall building that is 11m high. The ball hits the ground with a speed of 20m/s.
How fast was the ball moving when it left my hand?
(No, the answer isn't zero.)

Δx	
v_i	
v_f	
a	
Δt	

3. I throw a ball up into the air with a speed of 8m/s.

a. How long does it take before it is 3 meters above my hand and moving upwards?

Δx	
v_i	
v_f	
a	
Δt	

4. In the previous problem, how high will the ball go?

Δx	
v_i	
v_f	
a	
Δt	

Save this problem until we discuss forces in a couple weeks.

5. I give a 8N block a quick push along a table, where the coefficient of kinetic friction between block and table is $\mu_K = 0.3$. It comes to a stop in 3 seconds. How far did it slide?

Δx	
v_i	
v_f	
a	
Δt	