

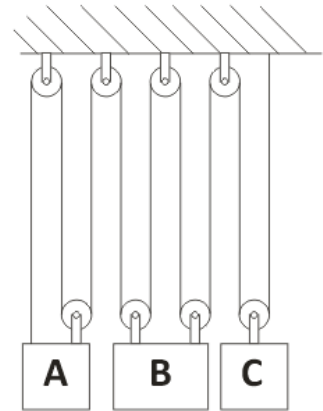
Name _____

Section (circle one): 0810 0910

ME 212 – Quiz 1
Winter 2012

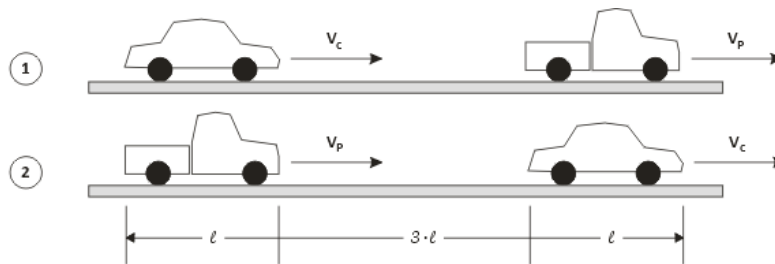
Solve the problems below on this paper in the spaces provided. In your solutions you need to show not only the answers but the steps or rationale you used to arrive at the answer. If you perform special actions on your calculator (like a SOLVE or a cross product), write out the steps you used and precisely what you entered into the calculator. Your answers need to be complete enough to make your work *checkable*. Box your final answers. If you need more space, you may attach a paper with the continued part of the problem clearly designated as the continued part.

1. (30% of quiz points)
- a. Develop a relationship between the velocities of the three blocks— v_A , v_B , and v_C .



- b. If block B is held still and block C is moved downward with a known velocity v , what will be the velocity and direction of block A?
- c. If block A is held still and block C is moved downward with a known velocity v , what will be the velocity and direction of block B?
- d. If block C is held still and block A is moved downward with a velocity v , what will be the velocity and direction of block B?

2. (70% of quiz points)



Going up the Cuesta Grade a car is moving at the constant speed v_c and a pickup at the constant speed v_p . For this scenario, the car starts 3 car-lengths behind the pickup and passes the pickup. At the end state of interest, the car has moved three car-lengths ahead of the pickup, as shown above. Answer the following question in terms of the variables given in the drawing above (v_c , v_p , ℓ).

a. How long does it take to go from state 1 to state 2?

b. How far does each vehicle travel while going from state 1 to state 2?