first two letters of last name

Physics 7B - Winter 07 - Quiz 2

Name_____ Student ID_____

DL section number _____

I certify by my signature that I will abide by the code of academic conduct of the University of California Signature _____

No books or notes. Calculators OK. Show all of your work below - answers alone do not receive credit!

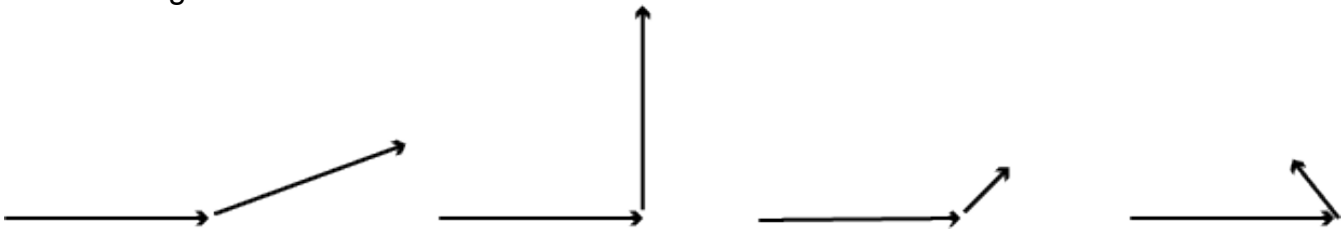
1. A 1.0-kg laboratory cart is moving at 0.2 m/s along a track. It hits a second cart at rest, also with mass 1.0 kg, and they stick together. Assume there are no frictional forces on the carts.

a. (1.0 pt) What is the total momentum of the two cart system?

b. (1.0 pt) What is the final velocity of the two carts?

c. (1.0 pt) Determine the impulse of the first cart on the second cart.

2. (1.5 pt) Each pair of vectors in the diagram below represents the momentum of an object just before and just after it receives a short impulse. The initial momentum is the same in all cases. Determine which one corresponds to the largest magnitude impulse, and which one corresponds to the smallest. Indicate this below the figure. Explain your reasoning in one sentence.



1a	(1.0) Q. Correct, Good Explanation (.2 or .15) (0.8) R. Minor Error. Generally at least computed the individual momentum correctly. (0.6) S. Correct answer, but incomplete explanation. Understanding not fully demonstrated. (0.4) T. Computed Ptotal = (m1+m2)*v1 (0.2) U. At least had P=mv written somewhere (0.1) X. Wrong (0.0) Z. Nothing
1b	If the incorrect answer was computed to part a, partial or full credit was still given if the student clearly demonstrated a full understanding of parts b or c, but used the incorrect value computed in a. (1.0) Q. Correct answer, good explanation. (.1 or .15) (0.8) R. Minor Error. (0.6) S. Correct answer, but an incomplete explanation. (0.4) T. Used the wrong mass in calculation (0.2) U. Major Error. (0.1) X. Wrong (0.0) Z. Nothing
1c	(1.0) Q. Correct, good explanation. (.1 or .075) (0.8) R. Minor Error (0.6) S. Major Error or Incomplete Explanation (0.3) T,U (same grade). At least understood that impulse was delta P (0.1) X. Wrong (0.0) Z. Nothing
2.	(1.5) Q. Correct Answer, appropriate work or good explanation (2 is the biggest, 1 is the smallest) (1.3) R. Vectors drawn correctly but minor ranking error (ie, said 4 was the biggest, which is close) (1.0) S. Vectors close, major ranking error, or incomplete explanation (0.8) T. Demonstrated some understanding (0.5) U. Simply connected the endpoints (did deltaP = Pi+Pf), most often resulting in the answer that 1 was the biggest and 4 was the smallest (0.2) V. Did the same thing as U, but ranked them another way. (0.1) X. Wrong (0.0) Z. Nothing