

Name: _____ **KEY** _____

CS 589 Principles of Database Systems
Winter 2011
Quiz 4

No books or notes.

Consider the following relation instance:

carries	Store	Product	Weight	Category
	Lowes	Hammer	1	Tools
	Lowes	Stove	75	Appliances
	HomeDepot	Shovel	4	Garden
	Bimart	Shovel	5	Yard
	Parr	Roller	2	Paint
	Sears	Brush	1	Paint

3-A. (10 points) For each JD below, say whether `carries` satisfies it or not. If not, show what tuples could be added to `carries` to make it satisfy the JD. (Note: S = Store, P = Product, W = Weight, C = Category.)

a. \bowtie [SP, PC, SWC]

This JD is satisfied.

Note that while, for example, <HomeDepot Shovel> joins with <Shovel Yard>, there is no SWC tuple that joins with the result, thus preventing extra tuples from being formed.

b. \bowtie [SP, PWC]

This JD is not satisfied.

For example, <HomeDepot Shovel> joins with <Shovel 5 Yard> to give <HomeDepot Shovel 5 Yard>, which is not in the original relation.

To Satisfy the JD, you need to add:

<HomeDepot Shovel 5 Yard>

<Bimart Shovel 4 Garden>

c. \bowtie [SPC, WC]

Also not satisfied. <Parr Roller Paint> joins with <1 Paint> to give

<Parr Roller 1 Paint>

To satisfy the JD, you need to add:

<Parr Roller 1 Paint>

<Sears Brush 2 Paint>