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DISC 1A

CS 143 Homework 1

1.

A	B	C
4	5	6
1	2	6
2	5	4

2.

A	R.B	S.B	C	D
1	2	2	4	6
1	2	8	6	8
1	2	7	5	9
3	4	2	4	6
3	4	8	6	8
3	4	7	6	9
5	6	8	6	8

3.

a) $\Pi_{customer-name}(\sigma_{branch-name='Region12'}(Branch \bowtie Account))$

b) $\Pi_{customer-name}(\sigma_{Branch.city=x.City}(Branch \bowtie \rho_x(Customer \bowtie Account)))$

c) $\Pi_{branch-name}(Branch) - \Pi_{branch-name}(Account)$

d) $\Pi_{customer-name}(Customer) - \Pi_{customer-name}(\sigma_{branch-name\neq'Region12,}(Account))$

e)
$\Pi_{customer-name}(Customer) -$
$\Pi_{customer-name}\Big((\Pi_{customer-name}(Customer)\times\Pi_{branch-name}(\sigma_{city='LosAngeles'}(Branch) -$
$\Pi_{customer-name,b\ ranch-name}(Account)\Big)$

f) $\Pi_{customer-name}(Customer) -$
$\Pi_{customer-name}\Bigg(\sigma_{(A1.branch-name<>A2.branch-name \vee A1.acct\#<>A2.acct\#) \wedge (A1.cust-name=A2.cust-name}(\rho_{A1}(Account)\times$
$\rho_{A2}(Account)\Bigg)$

4. $\Pi_{sid}(Student) - \Pi_{A.sid}(\sigma_{A.GPA>B.GPA}(\rho_A(Student)\times\rho_B(Student)))$