

Task 1

a)
$$p(R_1, \pi_{\text{name}}^{\text{SID}} (\pi_{\text{SID}} ((\sigma_{\text{class}=2} (\text{courses}) \bowtie \text{Gradebook}) \bowtie \text{Students})))$$

$$p(R_2, \pi_{\text{name}}^{\text{SID}} (\pi_{\text{SID}} ((\sigma_{\text{class}=1} (\text{courses}) \bowtie \text{Gradebook}) \bowtie \text{Students})))$$

$$R_1 \cup R_2$$

b)
$$p(R_1, \pi_{\text{name}}^{\text{SID}} (\pi_{\text{SID}} ((\sigma_{\text{class}=2} (\text{courses}) \bowtie \text{Gradebook}) \bowtie \text{Students})))$$

$$p(R_2, \pi_{\text{SID}}^{\text{SID}} (\sigma_{\text{surname} = \text{valdet}} \text{students}))$$

$$R_1 \cup R_2$$

c)
$$p(R_1, \pi_{\text{SID}} (\pi_{\text{SID}} ((\sigma_{\text{class}=2} (\text{courses}) \bowtie \text{Gradebook}) \bowtie \text{Students})))$$

$$p(R_2, \pi_{\text{SID}} (\pi_{\text{SID}} ((\sigma_{\text{class}=1} (\text{courses}) \bowtie \text{Gradebook}) \bowtie \text{Students})))$$

$$R_1 \cap R_2$$

dd)

d)
$$\pi_{\text{SID}} ((\pi_{\text{SID}} (\text{courses})) \div (\pi_{\text{SID}} (\text{Gradebook})))$$

$$\pi_{\text{SID}} ((\pi_{\text{SID}, \text{CID}} (\text{Gradebook})) \div (\pi_{\text{CID}} (\text{courses})))$$

e)
$$\pi_{\text{SID}} ((\pi_{\text{SID}, \text{CID}} (\text{Gradebook})) \div (\pi_{\text{CID}} (\sigma_{\text{class}=3} (\text{courses}))))$$

f)
$$p(A, \text{Gradebook})$$

$$p(B, \text{Gradebook})$$

$$\pi_{A.\text{mark}, B.\text{mark}} (A \bowtie_{A.\text{mark} > B.\text{mark}} B)$$

g)
$$p(A, \text{Gradebook})$$

$$p(B, \text{Gradebook})$$

$$\pi_{A.\text{SID}} (A \bowtie_{A.\text{CID} = B.\text{CID}} \text{AND } (A.\text{SID} > B.\text{SID} \text{ OR } A.\text{SID} < B.\text{SID})) B)$$

Task 2

a)

Name
Warren

b)

Name
Warren

c)

Empty table

d)

Empty table