Task 1

a) $\pi_{SID}((\sigma_{Class=1 \vee Class=2}(Courses)) \bowtie Gradebook)$

b) $(\pi_{SID}((\sigma_{Class=1}(Courses)) \bowtie Gradebook)) \cup (\pi_{SID}(\sigma_{Surname=\text{"Valdez"}}(Students)))$

c) $(\pi_{SID}((\sigma_{Class=1}(Courses)) \bowtie Gradebook)) \cap (\pi_{SID}((\sigma_{Class=2}(Courses)) \bowtie Gradebook))$

d) $\pi_{SID}(\pi_{SID, CID}(Gradebook) \div (\pi_{CID}(Courses))$

e) $\pi_{SID}(\pi_{SID, CID}(Gradebook) \div (\pi_{CID}(\sigma_{Class=3}(Courses)))$

f) $Gradebook2 = \rho_{SID, Mark \rightarrow SID2, Mark2}(Gradebook)$
$\pi_{SID, SID2}(\sigma_{SID > SID2 \wedge SID != SID2}(Gradebook \times Gradebook2))$

g) $Gradebook2 = \rho_{SID, CID \rightarrow SID2, CID2}(Gradebook))$
$\pi_{CID}(\sigma_{CID = CID2 \wedge SID != SID2}(Gradebook \times Gradebook2))$

Task 2

a) “Warren”
b) “Warren”
c) empty set
d) empty set