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Task 1:

a) πName(πSID((σClass=1 ∨ Class=2 Courses) ⋈ Gradebook) ⋈ Students)

b) (πSID((σClass=1 Courses) ⋈ Gradebook)) ∪ (πSID(σSurname='Valdez' Students))

c) πSID(πCID(σClass=1 Courses) ⋈ Gradebook) ∩ πSID(πCID(σClass=2 Courses) ⋈ Gradebook)

d) (πSID, CID Gradebook) / (πCID Courses)

e) (πSID, CID Gradebook) / (πCID (σClass=3 Courses))

f) πA.SID, B.SID(ρA(Gradebook) ⋈ (A.SID ≠ B.SID ∧ A.Mark < B.Mark) ρB(Gradebook))

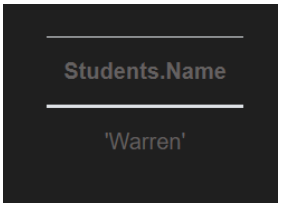
g) ρGradebook(πA.CID(ρA(Gradebook) ⋈ (A.CID = B.CID ∧ A.SID ≠ B.SID) ρB(Gradebook)))

Alternative task view:

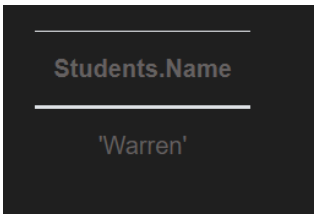
```
πName(πSID((σClass=1 ∨ Class=2 Courses) ⋈ Gradebook) ⋈ Students)
(πSID((σClass=1 Courses) ⋈ Gradebook)) ∪ (πSID(σSurname='Valdez' Students))
πSID(πCID(σClass=1 Courses) ⋈ Gradebook) ∩ πSID(πCID(σClass=2 Courses) ⋈ Gradebook)
(πSID, CID Gradebook) / (πCID Courses)
(πSID, CID Gradebook) / (πCID (σClass=3 Courses))
πA.SID, B.SID(ρA(Gradebook) ⋈ (A.SID ≠ B.SID ∧ A.Mark < B.Mark) ρB(Gradebook))
ρGradebook(πA.CID(ρA(Gradebook) ⋈ (A.CID = B.CID ∧ A.SID ≠ B.SID) ρB(Gradebook)))
```

Task 2:

a)



b)



c)

d)