Dzhemilya Gizutdinova, lab #4.

Task 1

1. Find the names of suppliers who supply some red part.

∏sname(((σ color = 'red') (Parts ⋈ Catalog)) ⋈ Suppliers)

2. Find the sids of suppliers who supply some red or green part.

∏sid(σ color = ('red' v 'green') (Parts)) ⋈ Catalog)

3. Find the sids of suppliers who supply some red part or are at 221 Packer Street.

∏sid((σ color = 'red') (Parts ⋈ Catalog)) U ∏sid((σ address = '221 Packer Street') (Supplier))

4. Find the sids of suppliers who supply some red part and some green part.

∏sid((σ color = 'red') (Parts ⋈ Catalog)) ∩ ∏sid((σ color = 'green') (Parts ⋈ Catalog))

5. Find the sids of suppliers who supply every part.

∏sid(∏sid(Catalog) x ∏sid(Parts))

6. Find the sids of suppliers who supply every red part.

∏sid,pid(Catalog) ÷ ∏pid((σ color = 'red') (Parts)

7. Find the sids of suppliers who supply every red or green part.

∏sid,pid(Catalog) ÷ ∏sid((σ color = 'red' v color = 'green') (Parts))

8. Find the sids of suppliers who supply every red part or supply every green part.

∏sid(∏sid(Catalog) ÷ ∏sid((σ color = 'red') (Parts ⋈ Catalog))) U ∏sid(∏sid(Catalog) ÷ ∏sid((σ color = 'green') (Parts ⋈ Catalog)))

9. Find pairs of sids such that the supplier with the first sid charges more for some part than the supplier with the second sid.

$A \leftarrow (Catalog)$

$B \leftarrow (Catalog)$

$\prod A.sid, B.sid(A \bowtie A.pid == B.pid \wedge A.cost > B.cost\ B)$

10. Find the pids of parts supplied by at least two different suppliers

$A \leftarrow \prod sid,pid(Catalog)$

$B \leftarrow \prod sid,pid(Catalog)$

$\prod A.pid\ (A \bowtie A.sid\ != B.sid \wedge A.pid == B.pid\ B)$