Consider the following schema:

Suppliers(sid: integer, sname: string, address: string)

Parts(pid: integer, pname: string, color: string)

Catalog(sid: integer, pid: integer, cost: real)

The key fields are underlined, and the domain of each field is listed after the field name. Therefore sid is the key for Suppliers, pid is the key for Parts, and sid and pid together form the key for Catalog. The Catalog relation lists the prices charged for parts by Suppliers. Write the following queries in relational algebra, tuple relational calculus, and domain relational calculus:

Expression	Assumption	Min	Max
$R1 \cup R2$	$R1$ and $R2$ are union-compatible	N2	N1 + N2
$R1 \cap R2$	$R1$ and $R2$ are union-compatible	0	N1
$R1 - R2$	$R1$ and $R2$ are union-compatible	0	N1
$R1 \times R2$		N1 * N2	N1 * N2
$\sigma_{a=5}(R1)$	$R1$ has an attribute named a	0	N1
$\pi_a(R1)$	$R1$ has attribute a, N1>0	1	N1
$R1/R2$	The set of attributes of $R2$ is a subset of the set of attributes of $R1$	0	0
$R2/R1$	The set of attributes of $R1$ is a subset of the set of attributes of $R2$	0	$\lfloor$N2 / N1$\rfloor$

1. Find the names of suppliers who supply some red part.
2. Find the sids of suppliers who supply some red or green part.
3. Find the sids of suppliers who supply some red part or are at 221 Packer Street.
4. Find the sids of suppliers who supply some red part and some green part.
5. Find the sids of suppliers who supply every part.
6. Find the sids of suppliers who supply every red part.
7. Find the sids of suppliers who supply every red or green part.
8. Find the sids of suppliers who supply every red part or supply every green part.
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.
10. Find the pids of parts supplied by at least two different suppliers.
11. Find the pids of the most expensive parts supplied by suppliers named Yosemite Sham.
12. Find the pids of parts supplied by every supplier at less than $200. (If any supplier either does not supply the part or charges more than $200 for it, the part is not selected.)

Answer the below using RA refers to Relational Algebra, TRC refers to Tuple Relational Calculus and DRC refers to Domain Relational Calculus and SQL