ex1.

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

```
SELECT name
FROM suppliers, parts, catalog
WHERE parts.color='red' AND suppliers.sid=c.sid AND parts.pid=catalog.pid
```

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

```
SELECT catalog.sid
FROM parts, catalog
WHERE parts.pid=catalog.pid AND (parts.color='red' OR parts.color='green')
```

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

```
SELECT suppliers.sid
FROM suppliers,  parts, catalog
WHERE suppliers.address='221 Packer Street' OR (parts.color='red' AND
suppliers.sid=catalog.sid AND parts.pid=catalog.pid)
```

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

```
SELECT c.sid
FROM catalog c
WHERE NOT EXISTS
(SELECT parts.pid
FROM parts
WHERE (parts.color='red' or parts.color='green') AND NOT EXISTS (
SELECT cat.sid
FROM catalog cat
WHERE c.sid=cat.sid AND parts.pid=cat.pid))
```

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

```
SELECT c.sid
FROM catalog c
WHERE (NOT EXISTS(
SELECT parts.pid
FROM parts
WHERE (parts.color='red') AND NOT EXISTS (
SELECT cat.sid
FROM catalog cat
WHERE c.sid=cat.sid AND parts.pid=cat.pid)))
OR (NOT EXISTS(
SELECT parts.pid
FROM parts
WHERE (parts.color='green') AND NOT EXISTS (
```

```
SELECT cat.sid
FROM catalog cat
WHERE c.sid=cat.sid AND parts.pid=cat.pid)))
```

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

```
SELECT c1.sid, c2.sid
FROM catalog c1, catalog c2
WHERE c1.sid<>c2.sid AND c1.pid=c2.pid AND c1.cost>c2.cost
```

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

```
SELECT c.pid
FROM catalog c
WHERE EXISTS (
SELECT cat.sid
FROM catalog cat
WHERE c.sid<>cat.sid AND c.pid=cat.pid)
```

8. find the average cost of the red parts and green parts for each of the suppliers
as I understood, I need to find average cost of both red and green parts

```
SELECT AVG(c.cost)
FROM parts, catalog
WHERE parts.pid=catalog.pid AND (parts.color='red' OR parts.color='green')
```

9. find the sids of suppliers whose most expensive part costs $50 or more

```
SELECT c.sid
FROM catalog c
WHERE EXISTS (
SELECT cat.sid
FROM catalog cat
WHERE c.sid=cat.sid AND c.cost>=50)
```

ex2.

1.

```
SELECT *
FROM author a
WHERE EXISTS (
SELECT *
FROM author auth, book
WHERE a.author_id=auth.author_id AND auth.id=book.editor)
```

2.

```
SELECT first_name, last_name
FROM (
SELECT *
FROM author a
WHERE NOT EXISTS (
SELECT auth.author_id
FROM author auth, book b
WHERE b.editor=auth.author_id AND a.author_id=auth.author_id))
```

3.

```
SELECT a.author_id
FROM author a
WHERE NOT EXISTS (
SELECT auth.author_id
FROM author auth, book
WHERE book.editor=auth.author_id AND a.author_id=auth.author_id)
```

ex3.

```
SELECT student.sname
FROM student, registration
WHERE registration.sid=student.sid AND registration.percent>90 AND registration.cid=107
```