5.5

a,

```
SELECT
   dname, num_em
FROM
   department
      INNER JOIN
   (SELECT
      AVG(salary) AS avg_sal, COUNT(*) AS num_em, dno
   FROM
      employee
   GROUP BY dno
   HAVING avg_sal > 30000) tmp1 ON dnumber = tmp1.dno;
```

Department	***Number of employees***
Headquarters	1
Administration	3
Research	4

b, We can retrieve the number of male employees in each department making more than $30000 by using the following SQL queries

```
SELECT
   dname, num_male_em
FROM
   department
      INNER JOIN
   (SELECT
      em2.dno, COUNT(*) AS num_male_em
   FROM
      employee em2
   INNER JOIN (SELECT
      AVG(salary) AS avg_sal, dno
   FROM
      employee
   GROUP BY dno
   HAVING avg_sal > 30000) tmp1 ON em2.dno = tmp1.dno
   WHERE
      sex = 'M'
   GROUP BY em2.dno) tmp2 ON dnumber = tmp2.dno;
```

Department	***Number of employees***
Headquarters	1
Administration	1
Research	3

5.7

a,

```
SELECT
   CONCAT(fname, ', ', lname) AS fullname
FROM
   employee em2
      INNER JOIN
   (SELECT DISTINCT
      dno
   FROM
      employee em
   INNER JOIN (SELECT
      MAX(salary) AS max_sal
   FROM
      employee) tmp1 ON em.salary = max_sal) tmp2 ON em2.dno = tmp2.dno;
```

b,

```
SELECT
   CONCAT(fname, ', ', lname) AS fullname
FROM
   employee em2
      INNER JOIN
   (SELECT
      dno
   FROM
      employee em
   WHERE
      super_ssn = '888665555') tmp2 ON em2.super_ssn = tmp2.dno;
```

```
c,
SELECT
    CONCAT(fname, ', ', lname) AS fullname
FROM
    employee
WHERE
    salary >= 10000 + (SELECT
            MIN(salary)
        FROM
            employee);
```