a.

SELECT emp.ename

FROM emp

WHERE emp.eid = (SELECT t1.eid

FROM (SELECT works.eid

FROM dept, works

WHERE dept.did = works.did AND dept.dname = 'Hardware') AS t1,

(SELECT works.eid

FROM dept, works

WHERE dept.did = works.did AND dept.dname = 'Software') AS t2,

(SELECT works.eid

FROM dept, works

WHERE dept.did = works.did AND dept.dname = 'Research')  
AS t3

WHERE t1.eid = t2.eid AND t2.eid = t3.eid AND t1.eid= t3.eid)

b.

SELECT DISTINCT dept.dname

FROM dept, works

WHERE dept.did NOT IN (SELECT works.did

FROM works

GROUP BY works.did)

c.

SELECT t1.managerid

FROM (SELECT MIN(budget) as min\_bud ,managerid

FROM dept

GROUP BY managerid) AS t1

WHERE t1.min\_bud> 1500000

d.

SELECT emp.ename

FROM emp

WHERE emp.salary <= (SELECT MIN(salary)

FROM emp)

e.

SELECT emp.ename

FROM dept, emp

WHERE emp.eid = dept.managerid AND budget = (SELECT MAX(budget)

FROM dept)

f.

SELECT dept1.dname, AVG(emp.salary)

FROM (SELECT dept.did, dept.dname

FROM dept

WHERE dept.budget >= 50

GROUP by dept.did) AS dept1, works, emp

WHERE dept1.did = works.did AND works.eid = emp.eid

GROUP BY dept1.did

g.

SELECT t1.managerid

FROM (SELECT dept.managerid, SUM(dept.budget) as budget

FROM dept

GROUP BY dept.managerid) AS t1

WHERE budget = (SELECT MAX(t1.budget)

FROM (SELECT dept.managerid, SUM(dept.budget) as budget

FROM dept

GROUP BY dept.managerid) AS t1)

h.

SELECT DISTINCT emp.ename

FROM(

SELECT dept1.did, AVG(emp.salary) AS salary

FROM (SELECT dept.did, dept.dname

FROM dept

WHERE dept.budget >= 50

GROUP by dept.did) AS dept1, works, emp

WHERE dept1.did = works.did AND works.eid = emp.eid

GROUP BY dept1.did) as dept\_avg ,works, emp

WHERE dept\_avg.did = works.did AND works.eid = emp.eid AND emp.salary <= dept\_avg.salary

i.

SELECT emp.ename

FROM emp, (SELECT works.eid

FROM works

GROUP BY works.eid

HAVING COUNT(works.did) = 1) as count\_emp

WHERE count\_emp.eid = emp.eid AND emp.eid IN (SELECT works.eid

FROM works

WHERE works.did = 8)