Assignment. 3.

1. Temp1 = $\sigma_{DNO > 10}$ (Employee).

   ANS1 = $\Pi_{FirstName, LastName, Address}$ (~~Employee~~ Temp1)

2. Temp1 = $\sigma_{S="F"}$ (Employee).

   Temp2 = π_{FNAME} (Temp1).

   Temp3 = $\sigma_{sex="F"}$ (DEPENDENT).

   Temp4 = $\pi_{FirstName}$ (Temp3)

   ANS2(Name) = Temp2 ∪ Temp4

3. Temp1 = σ(relationship = "~~Daughter~~ Son" or "Spouse") (DEPENDENT)

   Temp2 = $\Pi_{ESSN, DEPENDENT\_NAME}$ (Temp1)

   Temp3 = $\Phi \Pi_{FNAME, LNAME, SSN}$ (Employee).

   ANS3 (FNAME, LNAME, SSN) = Temp2 ⋈ Temp3.

4. Temp1 = $\sigma_{Salary > "30000"}$ (Employee).

   Temp2 = $\Pi_{FNAME, LNAME, SSN, DNO}$ (Temp1)

   Temp3 = Π_{DNO} (Temp1)

   Temp4 = Temp3 ⋈ DNO = DNUM Project

   Temp5 = $\Pi_{PNAME, PNUMBER}$ (Temp4)

   ~~ANS4~~ Temp6 = Temp2 ⋈ DNO = DNUM Temp5.

   Ans4 = $\Pi_{FSNAME, LNAME, SSN, PNAME, PNUMBER}$ (Temp6).

5.

Temp1 = $\sigma_{DNUMBER>='4' \text{ or } '5'}$ (Department)

Temp2 = $\pi_{DNAME, DNUMBER}$ (Temp1)

Temp3 = Temp2 $\bowtie_{DNUMBER=DNO}$ ~~Employee~~ Employee.

Ans5 = $\pi_{LNAME, salary, DNAME}$ (Temp3).

6. ~~Temp1~~ = $\sigma_{PNUMBER}$ (project)

Temp2 = σ_{PNO}. (Works_on)

Temp1 $\cup$ Temp2 $\rightarrow$ Temp3(PNO)

Temp4 = Temp3 ~~PNO~~ $\bowtie_{PNO=PNO}$ Works_on.

Temp5 = Temp4 $\bowtie_{ESSN=SSN}$ Employee.

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6. Temp1 = $\sigma_{PNUMBER}$ (project)

Temp2 = σ_{PNO} (works_on)

Temp3 (PNUM) = Temp1 $\cup$ Temp2

Temp4 (PNO) = Temp3 $\bowtie_{PNUM=PNO}$ Works_on

Temp5 = Temp4 $\bowtie_{PNO=PNUMBER}$ Project

Temp6 = Temp5 $\bowtie_{ESSN=SSN}$ Employee

Ans6 = $\pi_{PNAME, FNAME, LNAME}$

7. Temp 1 = $\sigma_{LNAME = "Franklin"}$ (Employee)

Temp 2 = $\sigma_{LNAME = "Wagner"}$ (Employee)

Temp 3 = Temp 1 ∪ Temp 2.

Temp 4 = Temp 3 ⋈ SSN = ESSN WORKS_ON.

Temp 5 = Temp 4 ⋈ PNO = pnumber Project

Ans 7 = $\pi_{PNAME, pnumber,}$ (Temp 5)

8. ~~Temp 1 = $\sigma_{LNAME, FNAME, SSN,}$~~

Temp 1 = $\sigma_{LNAME, FNAME, SSN, Salary}$ (Employee)

Temp 2 = Temp 1 ⋈ SSN = superSSN (Employee)

Temp 3 = Temp 1 saraly > saraly Temp 2.

Ans 8 = ~~Temp 3~~ $\pi_{LNAME, FNAME, SSN}$ (Temp 3)

9.

~~Department mgrSSN = SSN Employee~~

Temp 1 = Department $\bowtie_{MgrSSN = SSN}$ Employee.

Temp 2 = $\Pi_{FNAME, LNAME, DNumber, SSN}$ (Temp 1)

Temp 3 = Temp 2 $\bowtie_{SSN = SSN}$ Work_on

Temp 4 = Temp 3 $\bowtie_{PNO = PNumber}$ Project

Ans 9 = $\Pi_{FNAME, LNAME, SSN, PNAME, PNUMBER, HOURS}$ (Temp 4)

10.

Temp 1 = Π_{SSN} (Employee)

Temp 2 = Π_{ESSN} (dependent)

Temp 3 $_{(SSN)}$ = Temp 1 $\cup$ Temp 2

Temp 4 = Temp 3 $\bowtie_{SSN = ESSN}$ (Dependent)

Temp 5 = $\Pi_{SSN, Dependent\_Name}$ (Temp 4)

Temp 6 = Temp 5 $\bowtie_{SSN = SSN}$ Employee

Ans 10 ~~Temp 7~~ = $\Pi_{SSN, dependentname, FName, LName}$ (Temp 6)