Part 2:
Q1:
p (A1, σ_{month="December" ∧ county="Polk" ∧ quantity > 0} (sales))
p (A2, σ_{month="December" ∧ county="Linn" ∧ quantity > 0} (sales))
p (A3 (liquors->lid), (A1 ⋈_{liquors} A2))
π_{name} (A3 ⋈ liquors)

Q2:
p (A1 (liquors->lid), σ_{county="Polk" ∧ month="January”} (sales))
p (A2 (manufacturer->mfr1), (A1 ⋈ liquors))
p (A3 (manufacturer->mfr2), (A1 ⋈ liquors))
π_{mfr1} (A2 ⋈_{A2.mfr1=A3.mfr2 ∧ A2.lid != A3.lid} A3)

Part 3:
1. π_{B,D}(T2)

B	D
x	c
y	a
x	a

2. T2 × π_A(T2)

A	B	D	A
1	x	c	1
3	y	a	1
3	x	a	1
1	x	c	3
3	y	a	3
3	x	a	3

3. T1 ⋈_{T1.C=T2.D} T2

A	B	C	A	B	D
1	x	a	3	y	a
1	x	a	3	x	a

4. T1 – (T1 – T2)
Null

5. T1 / π_B(T2)
Null

6. T1 ⋈ (σ_{D=x}(T2))
Null