```sql
USE TSQLV4

SELECT
    empid,
    YEAR(orderdate) AS orderyear,
    COUNT(DISTINCT custid) AS total


FROM Sales.Orders
GROUP BY  empid, YEAR(orderdate)
```

```sql
USE TSQLV4

SELECT
    empid,
    COUNT(DISTINCT custid) AS total
FROM Sales.Orders
GROUP BY empid
```

TABLE 1

SQLQuery1.sql - DE...0CTCC3\ter

100 %

Results | Messages

	empid	orderyear	total
1	1	2014	22
2	2	2014	15
3	3	2014	16
4	4	2014	26
5	5	2014	10
6	6	2014	15
7	7	2014	11
8	8	2014	19
9	9	2014	5
10	1	2015	40
11	2	2015	35
12	3	2015	46
13	4	2015	57
14	5	2015	13
15	6	2015	24
16	7	2015	30
17	8	2015	36
18	9	2015	16
19	1	2016	32
20	2	2016	34
21	3	2016	30

why does it not add up?

?

TABLE 2

empid	total
1	65
2	59
3	63
4	75
5	29
6	43
7	45
8	56
9	29

This doesn't add up because even though distinct gets rid of duplicates, GROUP BY has a higher logical order, so it is executed first. Meaning that DISTINCT is only applies inside the group. Example Group 1 can only have a unique customerID lets say custid =10, This does not mean that another group cannot have custid = 10. So in Table 1 all the custid in(empid 1, 2014) is unique and all the custid in (empid1,2015) is unique, but between (empid 1, 2014) and (empid 1, 2015) there can be values that are repeated

EX: $(empid\,1, 2014) = \{1, 3, 5, 6, 7, 9\}$

$(empid\,2, 2015) = \{1, 2, 4, 5, 8, 9\}$

$|empid\,1, 2014| = 6$

$|empid\,1, 2015| = 6$