The owner of a restaurant serving Continental-style entrées was interested in studying ordering patterns of patrons for the weekend period. Records were maintained that indicated the demand for dessert during the same period. The owner decided to study two other variables, along with whether a dessert was ordered: the gender of the individual and whether a beef entrée was ordered. The results for 600 customers are as follows:

|  |  |  |
| --- | --- | --- |
|  | Gender | |
| Dessert Ordered | Male | Female |
| YES | 96 | 40 |
| NO | 224 | 240 |

|  |  |  |
| --- | --- | --- |
|  | Beef Entrée | |
| Dessert Ordered | YES | NO |
| YES | 71 | 65 |
| NO | 116 | 348 |

(Note: these two tables are for the same 600 customers).

(i) For a randomly select customer, what is the probability that this customer

1. Orders a dessert?
2. Orders a dessert or a beef entrée?
3. Is a female and does not order a dessert?
4. Does not order dessert given that this person is a lady?
   1. Are gender and ordering dessert independent? Why or Why not?
   2. Is ordering a beef entrée independent of whether the person orders dessert? Why or Why not?