Probability and Multiple Selections - Diabetes

We use the **Multiplication Rule for Probability** when we are selecting more than one item and we make our selections one at a time.

**Two Selections**

$$P\left(A and B\right)=P\left(A\right)P\left(B\left|A\right.\right)$$

A happens first and B happens second.

 The following is a table created illustrating the results of the CDC report on the number of existing Diabetes cases with the number of undiagnosed cases for Diabetes. The table is illustrated below and everyone in the table has Diabetes (either type I or type 2).

# Sex versus Diagnosis Type

|  | **Diagnosed**  | **Undiagnosed**  |  |
| --- | --- | --- | --- |
| **Sex** | **Diabetes** | **Diabetes** | **Total** |
| **Men** | 110 | 31 | 141 |
| **Women** | 95 | 25 | 120 |
| **Total**  | 205 | 56 | 261 |

If you select two different people at random, what’s the probability they are: **Approximate to the Thousandths**

35. Diagnosed with Diabetes?

36. Undiagnosed with Diabetes?

37. Men?

38. Women?

* Which sex is more likely to be diagnosed with diabetes? Explain why.
* Which sex is more likely to be undiagnosed with diabetes? Explain why.