Here is how I filled out the contingency table:

* P(Breast cancer) =0.01, so 10,000\*0.01 = 100 cases of breast cancer
* If 100 have cancer, 9900 do not.
* P(Screen+ | Breast cancer) = 0 .80, so 100\*0.80 = 80 screen+ cases ;
* P(Screen+ | No BC) = .096, so (10,000-100)\*.096 = 950 screen+ no BC

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Breast Cancer** | **No Breast Cancer** | **Total** |
| Screen positive | 80 | 950 | 1,030 |
| Screen negative | 20 | 8,950 | 8,970 |
| Total | 100 | 9,900 | 10,000 |

Now that the contingency table is filled in, I can compute the probability of breast cancer, given a positive screening test:

**Positive Predictive Value = P(breast cancer | Screen+) = 80/1,030 = 0.078 = 7.8%**

***Interpretation:*** Among the women with a positive screening test, only 7.8% will actually have breast cancer