

3. A medical researcher surveyed a large group of men and women about whether they take medicine as prescribed. The responses were categorized as never, sometimes, or always. The relative frequency of each category is shown in the table.

| | Never | Sometimes | Always | Total |
|-------|--------|-----------|--------|--------|
| Men | 0.0564 | 0.2016 | 0.2120 | 0.4700 |
| Women | 0.0636 | 0.1384 | 0.3280 | 0.5300 |
| Total | 0.1200 | 0.3400 | 0.5400 | 1.0000 |

- (a) One person from those surveyed will be selected at random.
- What is the probability that the person selected will be someone whose response is never and who is a woman?
 - What is the probability that the person selected will be someone whose response is never or who is a woman?
 - What is the probability that the person selected will be someone whose response is never given that the person is a woman?
- (b) For the people surveyed, are the events of being a person whose response is never and being a woman independent? Justify your answer.
- (c) Assume that, in a large population, the probability that a person will always take medicine as prescribed is 0.54. If 5 people are selected at random from the population, what is the probability that at least 4 of the people selected will always take medicine as prescribed? Support your answer.

$$\textcircled{a} \textcircled{1} p(\text{never and woman}) = \boxed{.0636}$$

$$\textcircled{2} p(\text{never or woman}) \\ = .12 + .53 - .0636 = \boxed{.5864}$$

$$\textcircled{3} p(\text{never} | \text{woman}) = \frac{.0636}{.53} = \boxed{.12}$$

$$\textcircled{b} p(\text{never} | \text{woman}) = p(\text{never}) \\ .12 = .12$$

yes they are independent

\textcircled{c} B - binary
I - independent
N - $n = 5$

S - prob success = .54

$p(X \geq 4)$
 $X = \#$ of people who
take meds out of 5.
1 - binomcdf(5, .54, 3)
 $= \boxed{.24}$