**1. a**

**2. a**

**3. c 🡨 if you replace the card each time…if you didn’t then the answer would be “e”**

**4. b**

**5. e**

**6. e**

**7. a**

**8.** Would most wives marry the same man again, if given the chance? According to a poll of 608 married women conducted by *Ladies Home Journal* (June 1988), 75% would marry their current husbands. Assume that, in reality, 70% of all married women would marry their current husbands. What the probability that in a poll of 608 married women, at least 75% of women would answer “yes” to that question? (Use the Normal approximation. Don’t forget to justify your use of this method by check the “rule of thumb”).

 **np≥10 n(1-p)≥10**

**608(.7)≥10 608(.3))≥10**

**425.6≥10 182.4≥10**

**CAN use the Normal Approx**

**N(425.6, 11.3)**

**P(X≥456) = Ncdf(456, 1x10^99, 425.6, 11.3) =.0036**

 **|**

**\*\*.75 x 608 = 456\*\***

 **The probability that at least 75% of women in a sample of 608 (456 women) say “yes” when asked if they would marry their current husbands is .36%**

**9.** The Internal Revenue Service estimates that 8% of all taxpayers filling out long forms make mistakes. Suppose that a random sample of 10,000 forms is selected.

(a)P(X > 800) (b) P(X < 1000) (c) P(X ≥ 800) (d) P(250 ≤ X < 600) (e) P(100 < X < 600)

 .4906 1 .50529 6.687x10^-15 0.4947

**10.** A survey conducted by the Harris polling organization discovered that 63% of all Americans are overweight. Suppose that a number of randomly selected Americans are weighed.

 (a) Find the probability that the fourth person weighed is the first person to be overweight. P(X=4) = .0319

 (b) Find the probability that it takes more than 4 people to observe the first overweight person. P(X>4) = .0187

 (c) Find the probability that it takes no more than 5 people but more than 2 people to observe the first overweight person.

 P(2 < X ≤ 5) =.363

 (d) Find the mean and standard deviation of the number of Americans that would have to be weighed in order to find the first person that was overweight. Interpret these values in context. $μ=1.587; σ=0.9655$: The average number of Americans that would have to be weighed in order to find the first overweight person is 1.587 people. The number of people that would have to be weighed in order to find the first overweight person will vary from the mean (1.587 people) by an average of 0.9655 people.

 (e) Construct a probability table and histogram out to n=5

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | 1 | 2 | 3 | 4 | 5 |
| P(X) | .63 | .2331 | .08625 | .0319 | .0118 |