Group Work
Chapter 5

Names_____

Determine whether the random variable is discrete or continuous.

1. Determine whether the random variable is discrete or continuous.

The time it takes for a light bulb to burn out.

Answer:

The weight of a t-bone steak.

Answer:

The number of people in class who have type B blood.

Answer:

Use the following information to answer questions 2-6: Apu performed a study to determine a probability distribution for the number of tofu dogs purchased per day. The results are summarized in the following table. For these problems, either show the formula you use, or write the command and output from Excel or your calculator.

x	$P(x)$
0	0.002
1	0.011
2	0.036
3	0.123

x	$P(x)$
4	0.201
5	0.188
6	0.102
7	0.094

x	$P(x)$
8	0.076
9	0.058
10	0.054
11	0.055

2. Find the mean (expected value) of the random variable.

Answer:

3. Find the variance of the random variable (for this problem, give 3 decimal places).

Answer:

4. Find the standard deviation of the random variable (for this problem, give 3 decimal places).

Answer:

5. What is the probability that Apu sells exactly 8 tofu dogs in a day?

Answer:

6. What is the probability that Apu sells 7 or more tofu dogs in a day?

Answer:

7. Suppose an insurance company sells flood insurance for a property valued at $800,000. The insurance company charges $680 for a 1-year policy and has calculated that the probability the property in question will be destroyed by a flood in the coming year is 0.0003265. What is the expected value to the insurance company? (Round to the nearest cent.) Show all work.

Answer:

8. Determine whether the given probability experiment is a binomial experiment.

A simple random sample of 40 students are asked whether they have internet access at home. The number of students who do have home access is recorded.

Yes or No?

An urn contains ping pong balls numbered 1 through 30. Five balls are drawn in succession (without replacement) and the number of ping pong balls with odd numbers is recorded.

Yes or No?

9. A binomial experiment is conducted with the given parameters. Compute the probability of x successes in the n independent trials of the experiment. Show the formula you use, or write the command and output from Excel or your calculator.

$n = 17,\ p = 0.45,\quad x = 4$

Answer:

10. Construct a probability distribution with the given parameters.

$n = 6,\ p = 0.54$

11. Find the mean of the random variable described in problem 10. Show work.

Answer:

12. Find the standard deviation of the random variable described in problem 10. Show work.

Answer:

13. Using problem 10, what is the probability that $x < 4$? Explain/show work.

Answer:

Use the following information to answer questions 14-17:
"Gee, Your Lip Looks Hairless" is a facial hair removal cream. In clinical trials of Gee, Your Lip Looks Hairless, 12% of the paitents in the study experienced weight gain as a side effect. Suppose a random sample of 50 Gee, Your Lip Looks Hairless users is obtained and the number of patients who experienced weight gain is recorded. For problems 14-17, show the formula you use, or write the command and output from Excel or your calculator.

14. Find the probability that exactly 7 experienced weight gain as a side effect.

Answer:

15. Find the probability that 8 or fewer experienced weight gain as a side effect.

Answer:

16. Find the probability that 6 or more patients experienced weight gain as a side effect.

Answer:

17. If 600 patients were surveyed, would it be unusual to observe 16 patients who experience weight gain as a side effect? Explain/show work.

Answer: