


5.E: Exercises

5.1: Introduction


5.2: Continuous Probability Functions

Which type of distribution does the graph illustrate?


 The horizontal axis ranges from 0 to 10. The distribution is modeled by a rectangle extending from $x = 3$ to $x = 8$.

Uniform Distribution

Which type of distribution does the graph illustrate?

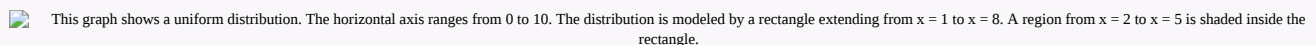
 This graph slopes downward. It begins at a point on the y-axis and approaches the x-axis at the right edge of the graph.

Which type of distribution does the graph illustrate?


 This graph shows a bell-shaped graph. The symmetric graph reaches maximum height at $x = 0$ and slopes downward gradually to the x-axis on each side of the peak.

Normal Distribution

What does the shaded area represent? $P(______ < x < ______)$

 This graph shows a uniform distribution. The horizontal axis ranges from 0 to 10. The distribution is modeled by a rectangle extending from $x = 1$ to $x = 8$. A region from $x = 2$ to $x = 5$ is shaded inside the rectangle.

What does the shaded area represent? $P(______ < x < ______)$

 This graph shows an exponential distribution. The graph slopes downward. It begins at a point on the y-axis and approaches the x-axis at the right edge of the graph. The region under the graph from $x = 6$ to $x = 7$ is shaded.

$P(6 < x < 7)$

For a continuous probability distribution, $0 \leq x \leq 15$. What is $P(x > 15)$?

What is the area under $f(x)$ if the function is a continuous probability density function?

one

For a continuous probability distribution, $0 \leq x \leq 10$. What is $P(x = 7)$?

A **continuous** probability function is restricted to the portion between $x = 0$ and 7. What is $P(x = 10)$?

zero

$f(x)$ for a continuous probability function is

, and the function is restricted to $0 \leq x \leq 5$. What is $P(x < 0)$?

$f(x)$, a continuous probability function, is equal to

, and the function is restricted to $0 \leq x \leq 12$. What is $P(0 < x < 12)$?

one

Find the probability that x falls in the shaded area.

Find the probability that x falls in the shaded area.

0.625

Find the probability that x falls in the shaded area.

$f(x)$, a continuous probability function, is equal to

and the function is restricted to $1 \leq x \leq 4$. Describe

The probability is equal to the area from $x =$

to $x = 4$ above the x -axis and up to $f(x) =$

.

Homework

For each probability and percentile problem, draw the picture.

Consider the following experiment. You are one of 100 people enlisted to take part in a study to determine the percent of nurses in America with an R.N. (registered nurse) degree. You ask nurses if they have an R.N. degree. The nurses answer “yes” or “no.” You then calculate the percentage of nurses with an R.N. degree. You give that percentage to your supervisor.

1. What part of the experiment will yield discrete data?
2. What part of the experiment will yield continuous data?

When age is rounded to the nearest year, do the data stay continuous, or do they become discrete? Why?

Age is a measurement, regardless of the accuracy used.

5.3: The Uniform Distribution

5.4: The Exponential Distribution

5.5: Continuous Distribution

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