Section 6.4 — Finding Values of a Normally Distributed Random Variable

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Standard Normal Distribution

Area to the left

- What *z* value has an area of 0.7291 to the left?

Area to the left

- What *z* value has an area of 0.7291 to the left?
- What *z* value has an area of 0.1949 to the left?

Area to the left

- What *z* value has an area of 0.7291 to the left?
- What *z* value has an area of 0.1949 to the left?
- What is the *z* value that has an area of 0.2500 to the left?

Area to the left

- What *z* value has an area of 0.7291 to the left?
- What *z* value has an area of 0.1949 to the left?
- What is the *z* value that has an area of 0.2500 to the left?
- What is the *z* value that has an area of 0.90 to the left?

Area to the left

- What *z* value has an area of 0.7291 to the left?
- What *z* value has an area of 0.1949 to the left?
- What is the *z* value that has an area of 0.2500 to the left?
- What is the *z* value that has an area of 0.90 to the left?
- What *z* value represents the 95th percentile?

- What is the *z* value with an area of 0.3936 to the right?

Area to the right

- What is the *z* value with an area of 0.3936 to the right?
- What is the *z* value with an area of 0.5600 to the right?

Area in between

- Find *z* so that the area between −*z* and *z* is 0.99.

Area in between

- Find z so that the area between $-z$ and z is 0.99.
- Find z so that the area between $-z$ and z is 0.75.

Area in between

- Find z so that the area between $-z$ and z is 0.99.
- Find z so that the area between $-z$ and z is 0.75.
- Find z so that the area between $-z$ and z is 0.6827.

Applications

Water Temperature

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- What is the cutoff for the first quartile of water temperatures?
- Let's say that the water temperature is unusually high if it is in the top 5% of temperatures. What is the minimum temperature to qualify as unusually high?

Body temperature

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- If 100.6°F is the lowest temperature to be considered a fever, what percentage of healthy persons would be considered to have a fever?

Body temperature

Assume that healthy human body temperatures are normally distributed with a mean of 98.20°F and standard deviation 0.62°F.

- If 100.6°F is the lowest temperature to be considered a fever, what percentage of healthy persons would be considered to have a fever?
- What should the cutoff be so that only 5% of healthy people have a temperature that is considered a fever?