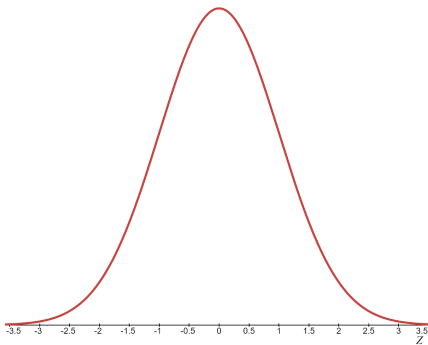


### 5.4.1: Exercises

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1. The patient recovery time from a particular surgical procedure is normally distributed with a mean of 7 days and a standard deviation of 2.1 days.
  - a. Martha's recovery time has Z-score -2.1. In how many days did Martha recover?
  
  
  
  
  
  
  
  
  
  
  - b. Hubert's recovery time has a Z-score 1.5. In how many days did Hubert recover?
  
2. The distribution of female baby length at birth is approximately normal with mean 19.3 inches and a standard deviation of 0.6 inches.
  - a. What is the range of lengths of unusually short female babies?
  
  
  
  
  
  
  
  
  
  
  - b. What is the range of lengths of unusually long female babies?
  
  
  
  
  
  
  
  
  
  
  - c. A female baby is in the 97th percentile for length. Find this baby's length and interpret your answer in context.
  
  
  
  
  
  
  
  
  
  
  - d. What are the lengths of female babies that correspond to the middle 95%?

3. Suppose the duration of a particular type of criminal trial is known to be normally distributed with a mean of 14 days and a standard deviation of 3 days.
- a. If one of the trials is randomly chosen, find the probability that it lasted at least 19 days. Show your thinking on the graph below, and use probability notation in your answer. Round the probability to four decimal places.



Images are created with the graphing calculator, used with permission from Desmos Studio PBC.

- b. What time frame corresponds to unusually long trials of this type?
- c. 75% of all trials of this type are completed within how many days?
- d. How long did it take the fastest 5% of trials of this type to end?
- e. Jordyn says that the middle 80% of all trials of this type are completed in between 11.48 and 16.52 days. Explain to Jordyn where she made a mistake and how to correct it.

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