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Extra Problems

These extra questions are here to give you more practice if you feel you need it. No new concepts are introduced on this page. If you've "got it", go ahead and move on to the next page. If you'd like a little more practice, work through the questions below.

Scenario: Body Temperature

The body temperatures of dogs are normally distributed with a mean of 101.3°F and a standard deviation of 0.6°F. Use this information to answer the following questions.

Question

1/1 point (graded)

About 95% of the temperatures of dogs fall within which range?

- 99.5 - 103.1
- 100.1 - 101.9
- 100.1 - 102.5 ✔
- 100.7 - 101.9
- above 101.3

Answer
Correct:
The Standard Deviation Rule tells us that 95% of the temperatures fall within 2 SD of the mean. In this case, this is between 101.3 - 2(0.6) = 100.1 and 101.3 + 2(0.6) = 102.5.

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Question

1/1 point (graded)
What percent of the temperatures are less than 99.5°F?

- (•) 0.15% ✔
- ( ) 0.30%
- ( ) 2.5%
- ( ) 5%
- ( ) 16%

Answer
Correct:
According to the SD rule, 99.7% of dog temperatures are between 101.3 - 3(0.6) = 99.5 and 101.3 + 3(0.6) = 103.1°F, which means that the remaining 0.30% of temperatures are divided evenly between less than 99.5°F and more than 103.1°F. We therefore conclude that 0.15% of temperatures are less than 99.5°F.

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Question

1/1 point (graded)
What percent of the temperatures are more than 100.1°F?

- ( ) 0.15%
- ( ) 2.5%
- ( ) 84%

95%

97.5% ✔

Answer

Correct:

Since 100.1°F is 2 SD below the mean, the percentage between 2 SD below the mean and 2 SD above the mean is 95%. This means that 95% of the temperatures are between 101.3 - 2(.6) = 100.1 and 101.3 + 2(.6) = 102.5. The remaining 5% is divided evenly between below 100.1 and above 102.5°F. Therefore, the percentage that is more than 100.1 is 95% + 2.5% = 97.5%.

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