

MATH225N Week 5 Assignment: Understanding Normal Distribution

Q1

Rosetta averages 148 points per bowling game with a standard deviation of 14 points. Suppose Rosetta's points per bowling game are normally distributed. Let X = the number of points per bowling game. Then $X \sim N(148, 14)$.

If necessary, round to three decimal places.

Ans:

Suppose Rosetta scores 110 points in the game on Thursday. The z-score when $x=110$ is -2.714 .

The mean is 148.

This z-score tells you that $x=110$ is 2.714 standard deviations to the **left** of the mean.

Q2

Suppose $X \sim N(12.5, 1.5)$, and $x=11$. Find and interpret the z-score of the standardized normal random variable.

Ans:

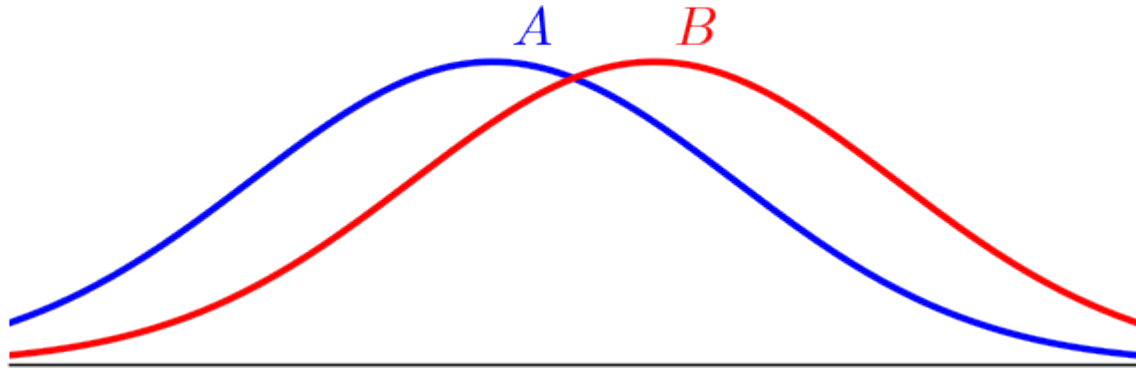
The z-score when $x=11$ is -1 . The mean is 12.5.

This z-score tells you that $x=11$ is 1 standard deviation(s) to the **left** of the mean.

Q3

Given the plot of normal distributions A and B below, which of the following statements is true?

Select all correct answers.



Ans:

A has the larger mean.



B has the larger mean.



The means of A and B are equal.



A has the larger standard deviation.



B has the larger standard deviation.



The standard deviations of A and B are equal.

Q4