

Algebra 2 - The Normal Distribution - Test

Common Core S-ID.A.4 · maths-pdf.fr/en/

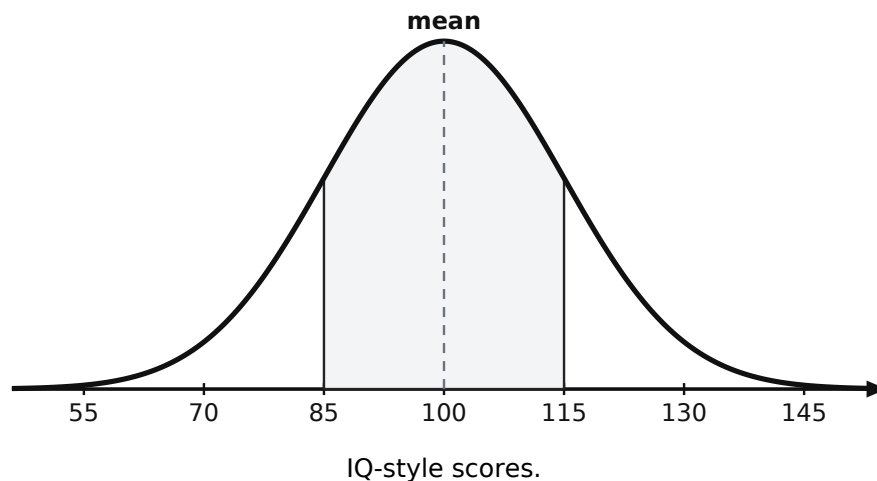
Name: _____ Class: _____ Date: ____/____/____

This 45-minute test on the normal distribution has 9 questions worth 20 points in total. The questions move from direct skills to multi-step problems. Show your work, because partial credit is given for a correct setup and sound reasoning.

About this test

- Grade: Algebra 2
- Chapter: The Normal Distribution
- Standards: S-ID.A.4
- Time: 45 minutes
- Total: 20 points

Question 1 - Empirical rule [2 pts]



Scores are approximately normal with mean 100 and standard deviation 15. What percent are between 85 and 115? What percent are between 70 and 130?

Question 2 - z-score [2 pts]

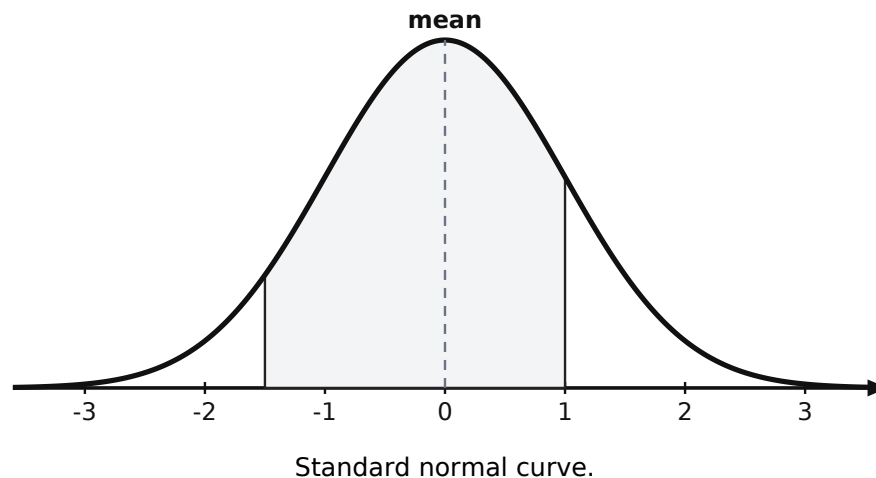
A runner's time of 24 minutes is in a race with mean 30 minutes and standard deviation 4

minutes. Find the z-score and interpret it.

Question 3 - Compare [3 pts]

Aisha scored 91 on a test with mean 80 and standard deviation 5. Ethan scored 96 on a test with mean 85 and standard deviation 8. Who scored higher relative to the class?

Question 4 - Area between [3 pts]



Use a standard normal table or calculator to find the proportion of a normal distribution between $z = -1.5$ and $z = 1$.

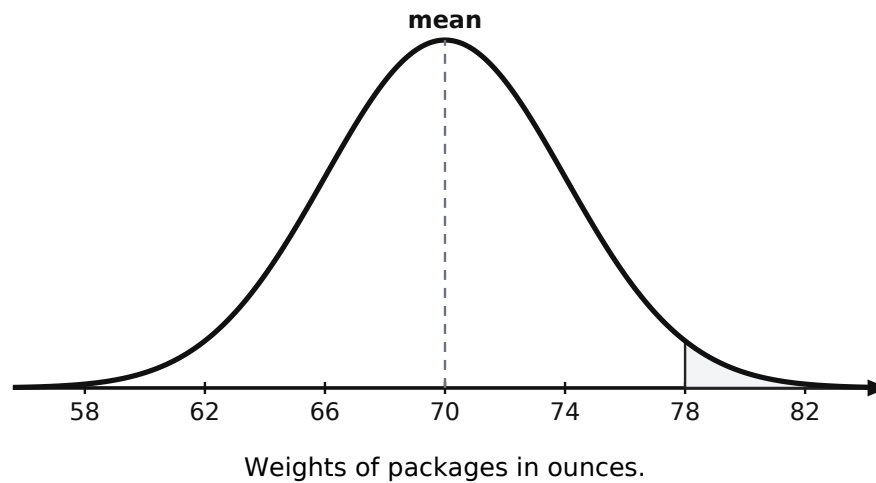
Question 5 - Percent above [2 pts]

Heights are normal with mean 64 inches and standard deviation 2.5 inches. What percent are taller than 69 inches?

Question 6 - Find the value [2 pts]

Scores have mean 500 and standard deviation 80. What score has z-score -0.5?

Question 7 - Count [2 pts]



Package weights are normal with mean 70 ounces and standard deviation 4 ounces. About how many of 500 packages weigh more than 78 ounces?

Question 8 - Percentile [2 pts]

The 80th percentile has z-score about 0.84. For scores with mean 60 and standard deviation 10, find the 80th percentile score.

Question 9 - Find the error [2 pts]

Liam says that in a normal distribution about 95% of data are within 1 standard deviation of the mean. Correct him and give the percent for 1 standard deviation.