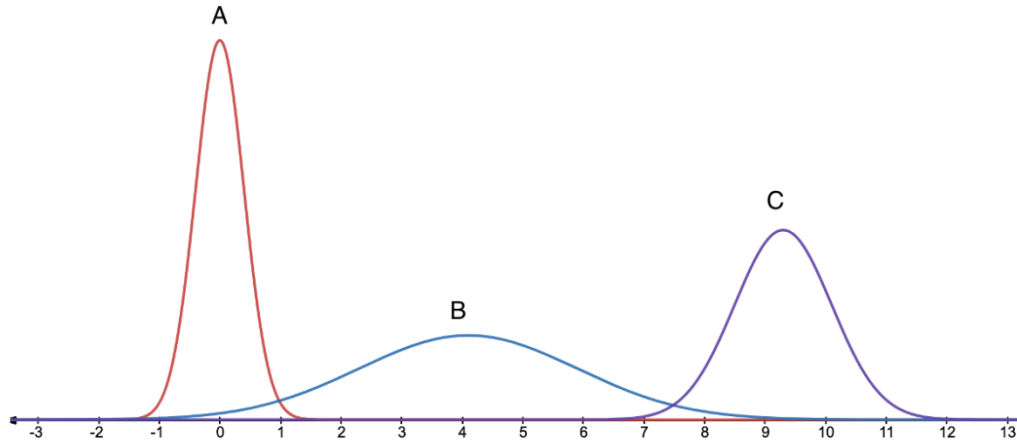


Practice Assignment: Normal Distributions

1) Below are three normal distributions:



Part A: Which distribution has the smallest standard deviation?

- a) Distribution A
- b) Distribution B
- c) Distribution C

Part B: Which distribution has the largest mean?

- a) Distribution A
- b) Distribution B
- c) Distribution C

2) A course required completing three exams, and the exam grades were normally distributed. Below are the averages and standard deviations of each exam.

Exam 1: $\mu = 70$, $\sigma = 5$

Exam 2: $\mu = 70$, $\sigma = 10$

Exam 3: $\mu = 80$, $\sigma = 5$

Part A: Which of the following is true for the distributions of Exams 1 and 2?

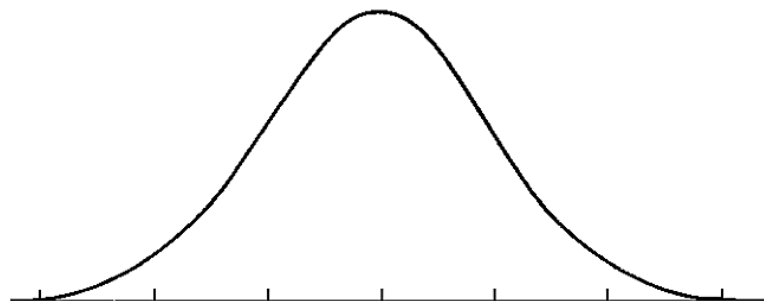
- a) The distribution of Exam 1 will be wider and flatter than the distribution of Exam 2.
- b) The distribution of Exam 1 will be narrower and higher than the distribution of Exam 2.
- c) The distribution of Exam 1 will be centered to the right of the distribution of Exam 2.
- d) The distribution of Exam 1 will be centered to the left of the distribution of Exam 2.

Part B: Which of the following is true for the distributions of Exams 1 and 3?

- a) The distribution of Exam 1 will be wider and flatter than the distribution of Exam 3.
- b) The distribution of Exam 1 will be narrower and higher than the distribution of Exam 3.
- c) The distribution of Exam 1 will be centered to the right of the distribution of Exam 3.
- d) The distribution of Exam 1 will be centered to the left of the distribution of Exam 3.

- 3) For a healthy adult, body temperature follows a normal distribution with a mean of 98.2 degrees and a standard deviation of 0.73 degrees.

Part A: Label the normal curve below with the mean, mean + 1 standard deviation, mean + 2 standard deviations, and mean + 3 standard deviations.



Part B: About what percentage of healthy adults would you expect have body temperatures above 98.2 degrees?

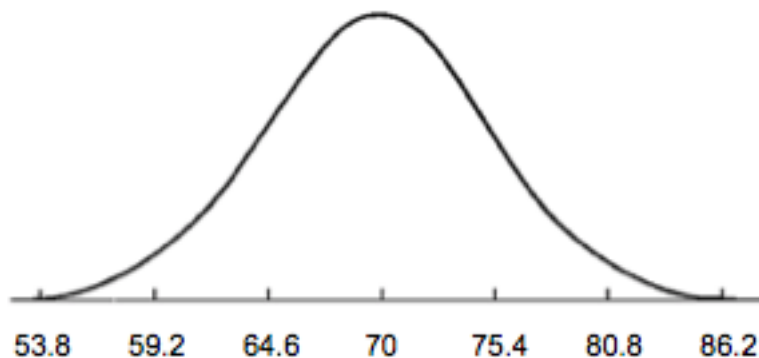
- a) 5%
- b) 15%
- c) 50%
- d) 80%
- e) 100%

Part C: Use the *DCMP Normal Distribution* tool at <https://lumen-learning.shinyapps.io/normaldist/> to determine the proportion of healthy adults you expect have body temperatures below 97.8 degrees. Round your answer to 2 decimal places.

Note: The answer is a proportion.

Part D: About what body temperature would the top 1% of healthy adults have? Use the *DCMP Normal Distribution* tool and round your answer to 2 decimal places. Make sure to include appropriate units.

- 4) The following is a normal distribution that models the average number of points per game for NCAA basketball teams in 2021.¹



Part A: What is the mean of the normal distribution?

Part B: What is the standard deviation of the normal distribution?

¹ Team Rankings. (2021, April 6). *NCAA BB team points per game*.

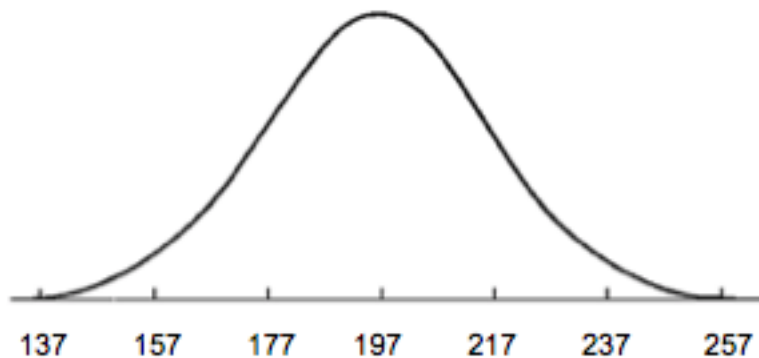
<https://www.teamrankings.com/ncaa-basketball/team-stat/scoring-category#:~:text=NCAA%20BB%20Team%20Points%20per%20Game%20%20,%20%2075.7%20%2043%20more%20rows%20>

- 5) The 2021 NCAA men's basketball champion was Baylor, whose team averaged 82.9 points per game. Use the *DCMP Normal Distribution* tool to answer the following questions.

Part A: About what percentage of teams averaged more points than Baylor? Round to the nearest hundredth.

Part B: About what percentage of teams averaged less than Baylor? Round to the nearest hundredth.

- 6) The following is a normal distribution of the amount college students spend on eating out per month at a certain college.



Part A: How much do these college students spend on eating out, on average, per month?

Part B: What is the standard deviation of the amount these college students spend on eating out per month?

- 7) Use the distribution in Question 6 to answer the following questions.

Part A: About what proportion of these college students would you expect to spend over \$220 per month on eating out?

Part B: About what percentage of these college students would you expect to spend under \$190 per month on eating out?

Part C: About how much does the top 10% (the 90th percentile) of college students spend per month on eating out? Round your answer to 2 decimal places and include proper units.