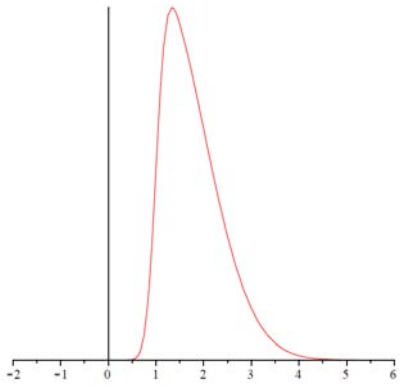
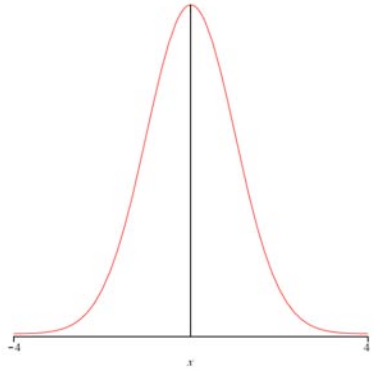
After watching the video, *Normal Distribution*, complete the following problems.

Consider the following distributions:

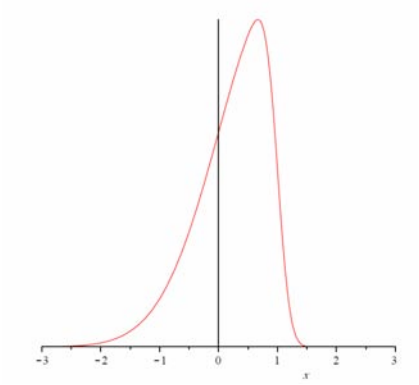
A.



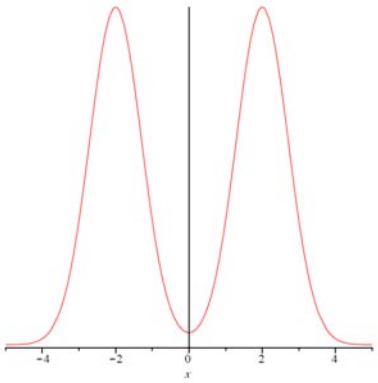
B.



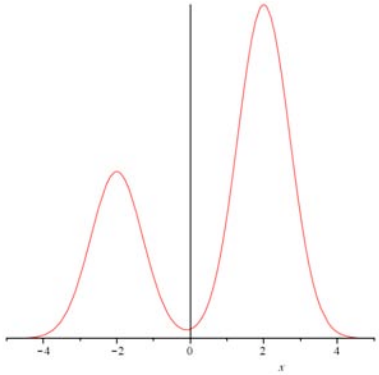
C.



D.



E.



1. Which, if any, is a normal distribution?

2. For which, if any, is the mean equal to the median?

3. For which, if any, is the mean less than the median?

4. For which, if any, is the mean greater than the median?

A natural extension to learning about the normal distribution is using it to find a percentile rank for a particular score or piece of data in relation to the other data. If the data is normally distributed, you can find a standardized score (also called z-score). The remainder of the problems will introduce computing and interpreting a standardized score.

5. The students at a large high school take a math final at the end of each semester.

   a. The second semester scores are normally distributed with a mean of 85 and standard deviation of 5. Lucy earns a score of 95. How many standard deviations away from the mean is her score?

   b. The first semester scores were normally distributed with a mean of 86 and standard deviation of 4. Lucy earns a score of 95. How many standard deviations away from the mean is her score?

   c. Compared to her peers, in which semester did she do better? How do you know?

   d. How is the number of standard deviations away from the mean calculated given any mean and any standard deviation?

The number of standard deviations away from the mean is called a standardized score or z-score.

6. Koro received a 76 on a final with a mean of 87 and standard deviation of 8 while Jordan received a 67 on a final with a mean of 81 and standard deviation of 12. Who did better? Explain your answer.