Normal Distribution
Use What You've Learned

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

1. True or false. Explain your reasoning.
   a. If data is normally distributed, it must be symmetric about the mean.

   b. If data is normally distributed, then half of the data falls below the mean.

   c. If data is symmetrically distributed about the mean, it is normally distributed.

   d. If data is normally distributed, then half of the data falls below the median.

   e. If data is normally distributed, it usually, but not always, forms a bell-shaped curve.

   f. If data is normally distributed, 68% of the data (a little more than two-thirds) will fall within one standard deviation of the mean.

2. Every July 4, at noon, the temperature in Freedom, Iowa is recorded. The data shows that temperature is normally distributed with a mean of 80° and a standard deviation of 5°. Use this information to fill in the blanks.

   a. Sixty-eight percent (a little more than two thirds) of the measured July 4th temperatures will fall between _____ degrees and _____ degrees.

   b. Ninety-five percent of the measured July 4th temperatures will fall between _____ degrees and _____ degrees.

   c. Half the temperatures will be above _____ degrees, and half will be below _____ degrees.

   d. The median temperature will be _____ degrees.

   e. _____ Percent of the data will be between 80 degrees and 85 degrees.

3. Which of the following distributions could reasonably be expected to be normally distributed? If the distribution is not normal, explain why.
   a. The number of M & Ms in a one-pound bag

   b. The number of years it takes a person to finish college

c. The weight of a standard-sized loaf of Baker Jeff's White Bread

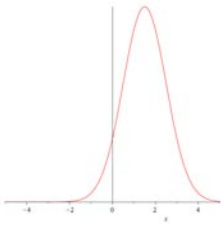
d. The number of minutes it takes your best friend to return your text message

e. The amount of money won by participants in the World Series of Poker

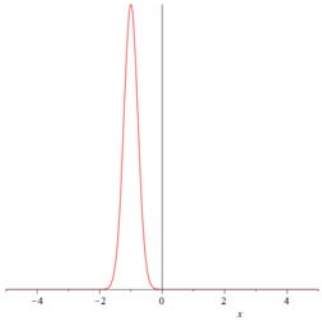
f. The distance a marksman gets from the center of the target at a shooting range

4. Rank these normal distributions from lowest to highest standard deviation.

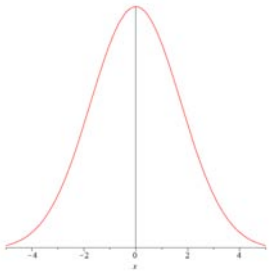
a.



b.



c.



d.