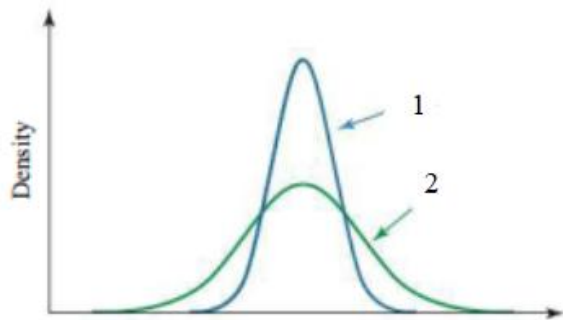


Groupwork PS 5.4

Your Name:

Group #:

- 1) Which of the two normal curves in the illustration has a larger standard deviation? Explain your reasoning.



- 2) For a normal distribution with a mean of 79.3 and standard deviation of 2.6...
- How many standard deviations away from the mean is the observation 81.9?
 - How many standard deviations away from the mean is the observation 76.7?
 - Find the z-scores for these two observations. What does it mean for a z-score to be positive or negative?
- 3) For the normal distribution with mean $\bar{x} = 235.72$ and standard deviation $s = 5.31$, find the z-scores for the following observations:
- 256.96
 - 219.79
 - 240
- 4) Open "California Home Prices, 2009" in StatCrunch and consider the variable "Price/SQFT," which records the price per square foot of property of some homes sold in California back in 2009.
- What is the z-score for the observation \$335.30 per square foot?
 - So how many standard deviations away from the mean is that observation?
 - is that an unusual price? Why or why not?

d) By the way, what are the mean and standard deviation for this distribution?

$\bar{x} =$

$s =$

e) So what is the probability that an observed price per square foot (in 2009) is at most \$300? (Stat → calculators → normal)

f) What is the probability that an observed price per square foot is greater than \$400?

g) What is the probability that an observed price is between \$275 and \$325 per square foot?

5) **Def:** The **standard normal distribution** is the normal distribution with mean $\bar{x} = 0$ and standard deviation $s = 1$.

a) Find the z-score of for the observations $x = 1$, $x = 2$, $x = -1$, and $x = -3.7$

b) What peculiar trait do you notice about the z-scores of these observations?

c) So what, in fact, are the observations in the standard normal distribution?