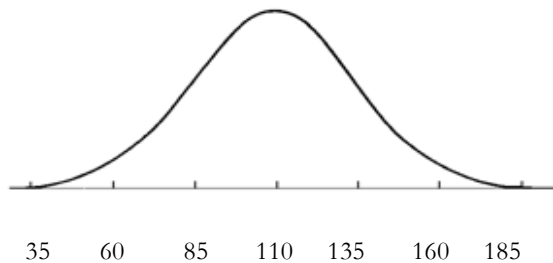


Do Now

Use the graph below to find the percentiles for the following IQ scores. $N(110, 25)$

HINT: Percentile means find the area to the left



- a. 110
- b. 60
- c. 135
- d. 185

Review 2.1

1.) **Multiple Choice:** The scores on a Statistics exam are approximately normally distributed with a mean of 75 and a standard deviation of 5. Which of the following would you expect, if any, to be an outlier.

- (a) 65
- (b) 75
- (c) 85
- (d) 100

2.) A study of 300 children to determine the age at which children first spoke found an approximately normal distribution with a mean of 102 weeks and a standard deviation of 2 weeks. According to the Empirical Rule:

- (a) approximately 68% of children first spoke between the ages of?
- (b) approximately 95% of children first spoke between the ages of?
- (c) approximately 99.7% of children first spoke between the ages of?

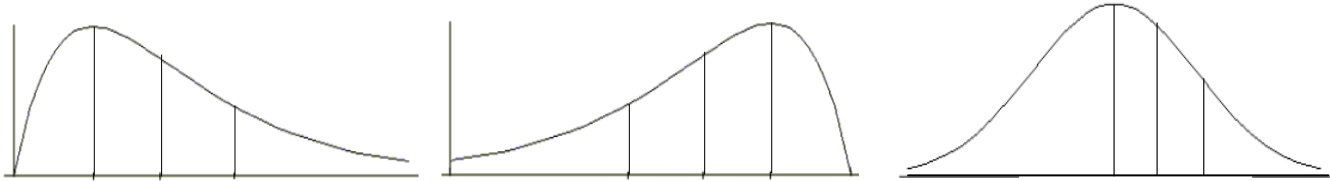
3.) State the properties of a **normal** density curve discussed in class:

- i.) _____
- ii.) _____
- iii.) _____

4.) For each of the following types of curves, state the relationship between the mean and median.

- i.) symmetric
- ii.) skewed left
- iii.) skewed right

5.) Label the mean, median, and mode on each density curve below.



6.) According to the Empirical Rule, what percent of the population lies between 4 and 10 if the mean is 7 and the standard deviation is 3?

7.) According to the Empirical Rule, what fraction of the population lies between 16.25 and 13.75 if the mean is 15 and the standard deviation is 1.25?

- 8.) The math section of the SATs are normally distributed with a mean of 500 and a standard deviation of 100. USE THE EMPIRICAL RULE TO ANSWER EACH PART OF THIS PROBLEM.
- (a) What percent of applicants have a score greater than 700?
- (b) What percent of applicants have a score less than 400?
- (c) What score would a student need in order to score in the 84th percentile of those taking the test?
- (d) What score would a student need in order to score in the 99.85 percentile of those taking the test?

Review 2.2

For # 9 – 11: The Chapin Social Insight Test evaluates how accurately the subject appraised other people. In the reference population used to develop the test, scores are approximately normally distributed with mean 25 and standard deviation 5.

- 9.) If a randomly selected student has a score of 40, then how many standard deviations away from the mean is that student's score? *Hint: Find the z-score*
- 10.) Determine the standardized value (z-score) for the score of 22.
- 11.) What is the relative frequency (area under the curve or percentage) corresponding to a score of 25 or more?

- 16.) *Answer using your TI-83 calculator.* In a study of elite distance runners, the mean weight was reported to be 63.1 kg with a standard deviation of 4.8 kg. Assuming that the distribution of weights is normal, what percent of elite distance runners have weights between 60.3 and 68.3?
Be sure to sketch the normal curve and shade the area under the curve to answer the question.
- 17.) Mark scores a 650 on the mathematics portion of the SAT. The distribution of SAT scores is normal, with mean 500 and standard deviation 100. Mark also took the ACT mathematics test and scores 29. ACT scores are normally distributed with mean 18 and standard deviation 6. Mark needs to decide whether to send his SAT or ACT scores with his college applications. On which test did Mark score higher?
- 18.) Using the standard normal distribution tables, what is the area under the standard normal curve corresponding to:
- a. $z < 1.3$ _____
- b. $z > -1.44$ _____
- c. $-0.6 < z < 1.3$ _____
- 19.) The scores on the WAIS have the distribution $N(110, 25)$. What is the median of this distribution?
- 20.) The scores on the WAIS have the distribution $N(110, 25)$. Patty's standardized score on this test was $z = 0.9$. What was her actual score?
- 21.) Scores on the WAIS have the distribution $N(110, 25)$. How high of a score is needed to be in the highest 30%? **(Use your calculator)**