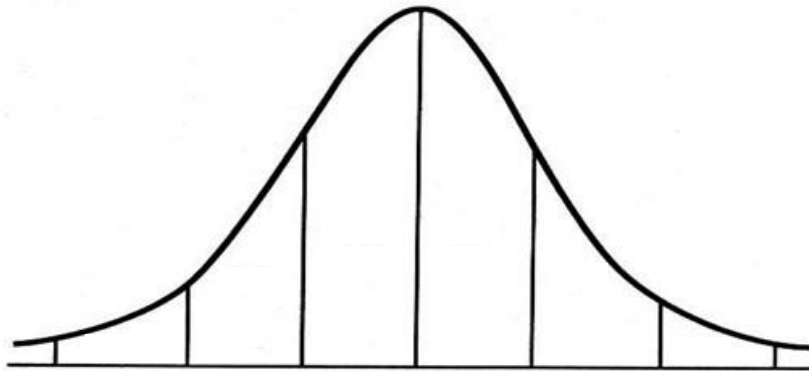


Name _____

Date _____ Block _____

IQ Scores: An Application of Normal Distributions and the Empirical Rule

Scientists have determined that IQ scores (used to measure intelligence) follow a normal distribution with a **mean score of 100** and a **standard deviation of 15**. Draw and label a normal distribution curve for IQ scores:



1) Use your normal distribution curve to answer the following questions.

- What percent of the population has an IQ between 85 and 115? _____
- What percent of the population has an IQ greater than 115? _____
- What percent of the population has an IQ lower than 60? _____
- What percent of the population has an IQ between 100 and 130? _____
- What percent of the population has an IQ greater than 85? _____
- If your IQ is 130, what is your percentile? _____
- If your IQ is 85, what is your percentile? _____

2) In order to calculate the **z-score** of a data point, you subtract the mean from your data point, then divide by the standard deviation.

- What is the z-score for an IQ of 116? _____
- How many standard deviations from the mean is an IQ score of 122? _____
- How many standard deviations from the mean is an IQ score of 91? _____
- If you have an IQ score of 110, what is your percentile ranking? _____
- If you have an IQ score of 82, what is your percentile ranking? _____

3) Calculate the z-scores and percentiles for some of these famous folks:

Name	IQ Score	Z-Score	Percentile
Steve Martin	142		
Madonna, Hilary Clinton	140		
Muhammad Ali	87		
Reggie Jackson	160		
Bill Clinton	137		
Adolf Hitler	141		
Andy Warhol	86		
John F. Kennedy	119		
OJ Simpson	89		
Michael Jackson	115		
Britney Spears	104		
George Washington	118		
Marilyn Monroe	149		

4) Mensa is the largest, oldest, and best-known high-IQ society in the world. In order to qualify as a member of Mensa, you must have an IQ at or above the 98th percentile. Which of the famous person's above qualify for this prestigious organization?

5) Lewis Terman (1916) developed the original idea of IQ and proposed this scale for classifying IQ scores:

IQ Score	Classification
Over 140	Genius or near genius
120 – 140	Very superior intelligence
110 – 119	Superior intelligence
90 – 109	Normal or average intelligence
80 – 89	Dullness
70 – 79	Borderline Deficiency
Under 70	Definite feeble-mindedness

6) **CHALLENGE:** According to Terman's scale, what percentage of the population can be considered to display:

- a. Genius or near genius? _____
- b. Very superior or superior intelligence? _____
- c. Normal or below intelligence? _____
- d. Dullness? _____
- e. A borderline deficiency or definite feeble-mindedness? _____