

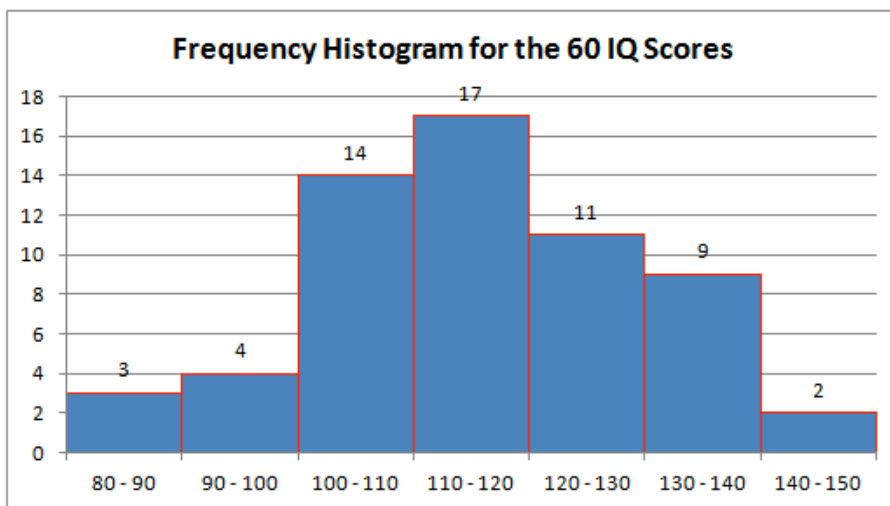
What Is a Genius IQ Score?

The following table shows the IQ scores for 60 adults. Graphical and numerical summaries of the 60 scores are also shown below.

IQ Scores for 60 Adults					
81	101	109	114	123	131
82	102	110	115	124	133
89	102	110	116	124	134
90	102	110	117	124	134
94	103	112	117	125	136
96	105	112	117	126	137
97	106	113	118	127	139
100	108	113	118	127	139
101	109	114	122	128	142
101	109	114	122	130	145

Summary Statistics

sample mean (\bar{x}) = 115.0
sample standard deviation (s) = 14.8



Min= 81
Q1= 104.5
Med= 114
Q3= 125.25
Max= 145

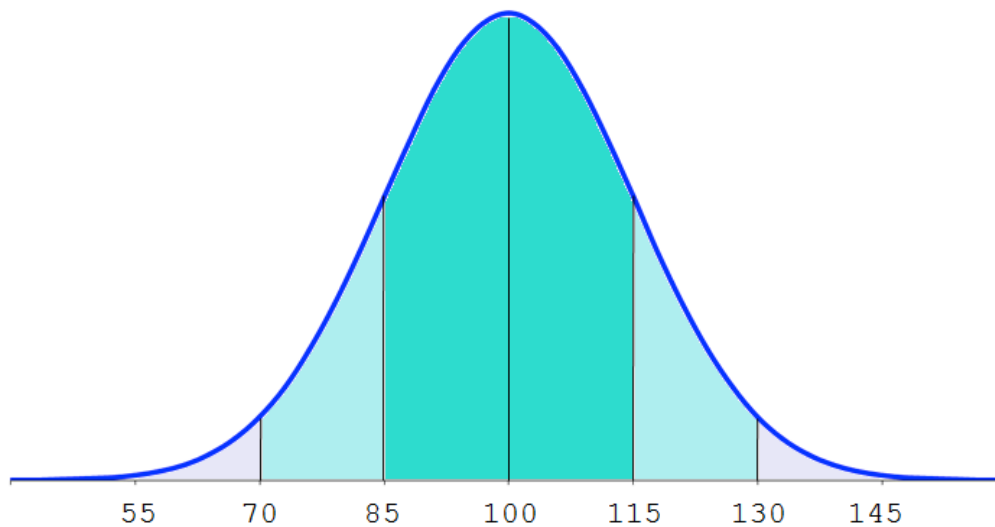


The boxplot and histogram show that IQ scores have a "regular" (symmetric) distribution with no outliers. The histogram describes the distribution of the sample of the 60 IQ scores but it does not represent the distribution of all possible IQ scores in the population.

Population Distribution of IQ Scores -- The Normal Distribution

The distribution of all IQ scores is an example of a distribution known as the Normal distribution. The abbreviation "IQ" comes from the German term *Intelligenz-Quotient* (Intelligence Quotient), originally coined by psychologist William Stern.

IQ tests are designed so that the mean IQ score is 100, with a standard deviation of 15. Approximately 95% of the population scores within two SDs of the mean, i.e. has an IQ between 70 and 130. Sixty-eight percent of IQ scores fall within one standard deviation of the mean. So that means that the majority of people have an IQ score between 85 and 115.



Intelligence Tests

Source: <http://psychology.about.com/od/psychologicaltesting/f/genius-iq-score.htm>

Today's intelligence tests are based largely on the original test devised in the early 1900's by French psychologist [Alfred Binet](#). In order to identify students in need of extra assistance in school, the French government asked Binet to devise a test that could be used to discover which students most needed academic help.

Based on his research, Binet developed the concept of mental age. Certain questions he posed were easily answered by children of certain age groups. Some children were able to answer questions that were typically answered by children of an older age - these children had a higher mental age than their actual chronological age. Binet's measure of intelligence was based on the average abilities of children of a particular age group.

A Breakdown of IQ Scores

- 1 to 24 - Profound mental disability
- 25 to 39 - Severe mental disability
- 40 to 54 - Moderate mental disability
- 55 to 69 - Mild mental disability
- 70 to 84 - Borderline mental disability
- 85 to 114 - Average intelligence
- 115 to 129 - Above average; bright
- 130 to 144 - Moderately gifted
- 145 to 159 - Highly gifted
- 160 to 179 - Exceptionally gifted
- 180 and up - Profoundly gifted

Genius IQ Scores

So what is considered a genius IQ score? Generally, any score over 140 is counted as a high IQ. A score over 160 is considered by many to be a genius IQ score. Scores that are 200 and over are often referred to as "unmeasurable genius."

Take Home Assignment #3

Use the normal distribution of IQ scores with mean 100 and standard deviation 15 to do the following exercises:

- (1) Compute the percent of the population with IQ scores falling in each of the 11 breakdown categories of IQ scores: (a) **using Table A**, and (b) **using TI 83/84**.
- (2) Compute the 1st, 2nd, & 3rd deciles of the IQ distribution
- (3) Compute the 1st & 3rd quartiles of the IQ distribution
- (4) Compute the 80th & 90th percentiles of the IQ distribution.