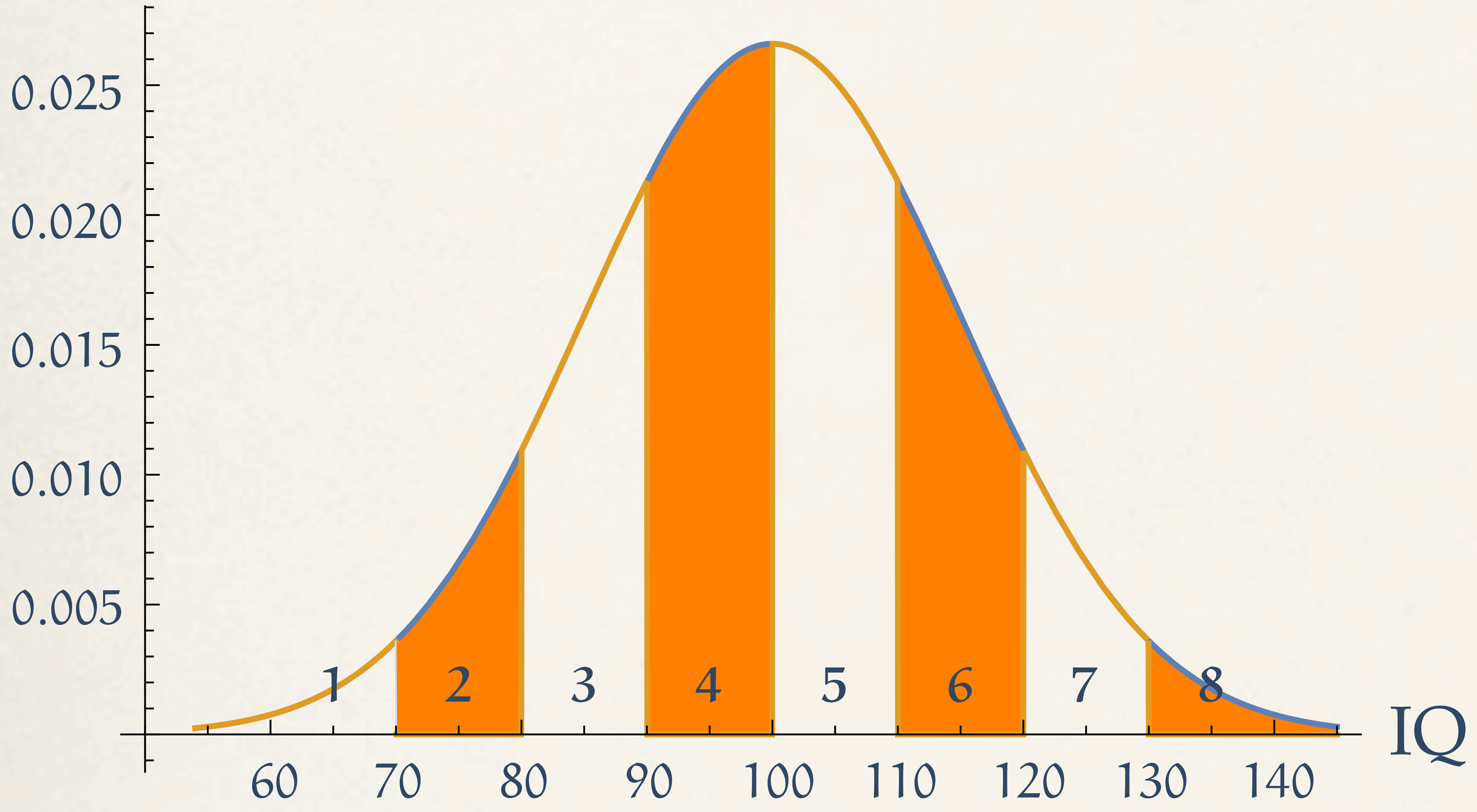
A chi-squared test

The principle:

Compare Burt's IQ data with a random sample generated from a normal distribution with mean 100 and variance 225.

A hypothesised normal distribution of IQs with mean 100 and variance 225

Random sample: $X_1, \ldots, X_n$



$$S_n^{(1)} \sim \text{Binomial}(n, p_1)$$

$$S_n^{(2)} \sim \text{Binomial}(n, p_2)$$

$$\cdots\cdots\cdots\cdots\cdots\cdots\cdots$$

$$S_n^{(7)} \sim \text{Binomial}(n, p_7)$$

$$S_n^{(8)} \sim \text{Binomial}(n, p_8)$$

IQ bins j	70< 1	70–80 2	80–90 3	90–100 4	100–110 5	110–120 6	120–130 7	>130 8
Probabilities p_j	0.0228	0.0685	0.1613	0.2475	0.2475	0.1613	0.0685	0.0228

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Two maxims of T. W. Körner:

- The test should be easy to apply.
- The method should not ignore certain pieces of data.