From Percentiles to Scores

- What octane rating corresponds to the 25th percentile?
- Draw a picture.
- The 25th percentile is how many standard deviations away from the mean?

Standard Normal Model

- Table Z: in your text.

\[-0.67 = \frac{2 - 91}{1.5}\]
Standard Normal Model

- http://davidmlane.com/hyperstat/z_table.html
- \[-0.67 = \frac{? - 91}{1.5}\]
- \[? = -0.67(1.5) + 91\]
- \[? = -1 + 91 = 90\]

Are Your Data Normal?

- The histogram should be mounded in the middle and symmetric.
- The data plotted on a normal probability (quantile) plot should follow a diagonal line.
Octane Data
- Normal Quantile Plot
  - Data (black dots) follow the Normal Model (red diagonal line).
- Histogram
  - Shape is symmetric and mounded in the middle
- Octane data could have come from a Normal Model.

Amplifier Gain Data
- Normal Quantile Plot
  - Data (black dots) start below, curve above and then below the Normal Model (red diagonal line).
- Histogram
  - Shape is mounded on the left and skewed to the right.
- Amplifier gain data could not have come from a Normal Model.