

Stat 101L: Lecture 9

Standardizing

$$z = \frac{y - \mu}{\sigma}$$
$$z = \frac{70 - 60}{6} = 1.67$$

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Standard Normal Model

- ♦ Table Z: Areas under the standard Normal curve in the back of your text.
- ♦ On line:

http://davidmlane.com/hyperstat/z_table.html

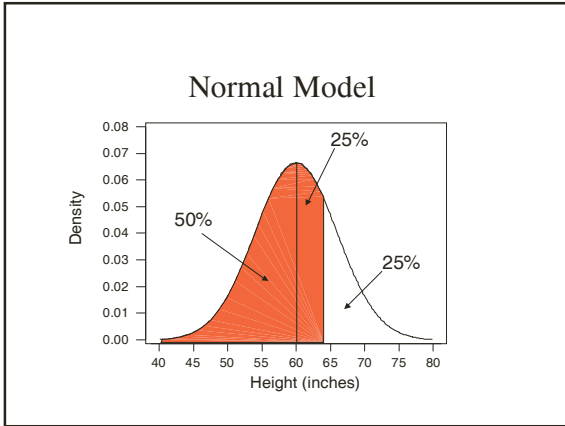
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From Percentages to Heights

- ♦ What height corresponds to the 75th percentile?
- ♦ Draw a picture.
- ♦ The 75th percentile is how many standard deviations away from the mean?

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Standard Normal Model

- ◆ Table Z: Areas under the standard Normal curve in the back of your text.
- ◆ On line:

http://davidmlane.com/hyperstat/z_table.html

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Reverse Standardizing

$$z = \frac{y - \mu}{\sigma}$$

$$0.67 = \frac{y - 60}{6}$$

$$y = (6 * 0.67) + 60 = 64.02$$

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Do Data Come from a Normal Model?

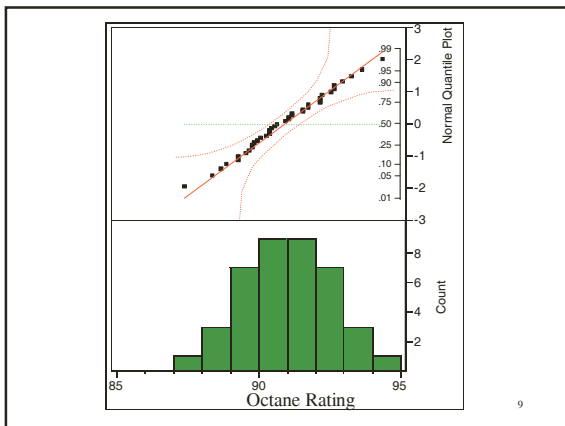
- ◆ The histogram should be mounded in the middle and symmetric.
- ◆ The data plotted on a normal probability (quantile) plot should follow a diagonal line.
 - The normal quantile plot is an option in JMP: Analyze – Distribution.

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Do Data Come from a Normal Model?

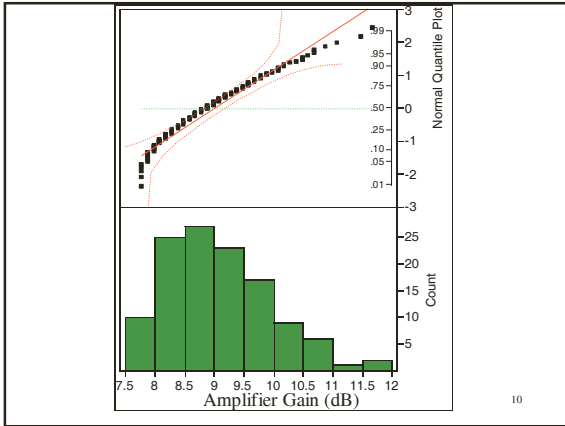
- ◆ Octane ratings – 40 gallons of gasoline taken from randomly selected gas stations.
- ◆ Amplifier gain – the amount (decibels) an amplifier increases the signal.
- ◆ Height – 550 children age 5 to 19.

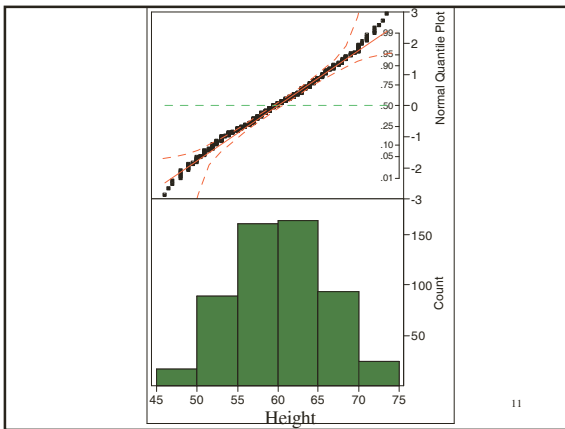
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Nearly normal?

- ◆ Is the histogram basically symmetric and mounded in the middle?
- ◆ Do the points on the Normal Quantile plot fall close to the red diagonal (Normal model) line?

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