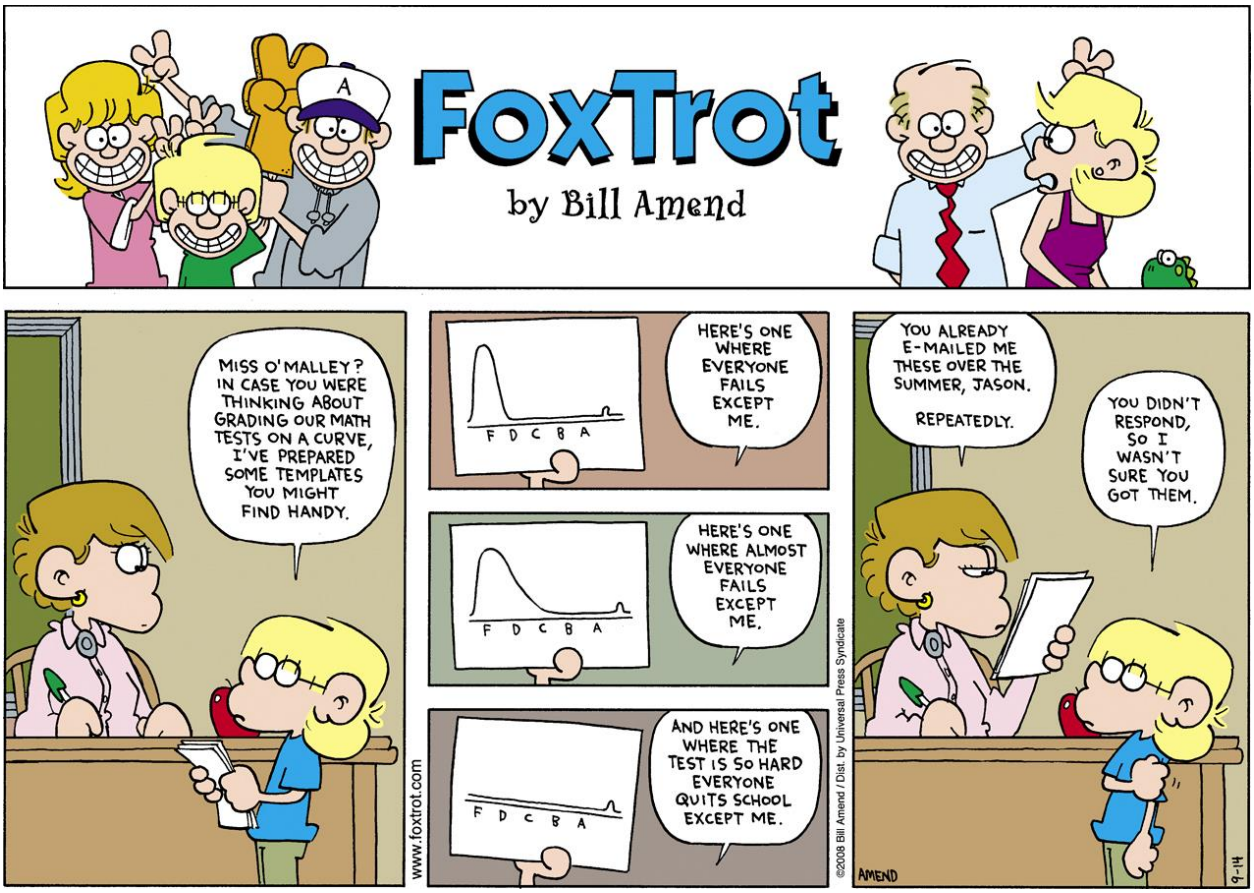
Chapter 2: Modeling Distributions of Data



Key Vocabulary:

- percentiles
- cumulative relative frequency graphs
- z-scores
- transforming data
- density curves
- median of density curve
- transform data
- mean of density curve
- standard deviation of density curve
- Normal curves
- Normal distributions
- 68-95-99.7 rule
- $N(\mu,\sigma)$
- standard Normal distribution
- standard Normal table
- Normal probability plot
- μ mu
- σ sigma

2.1 Describing Location in a Distribution (pp.84-103)

1. A *percentile* is…

1. Is there a difference between the 80th percentile and the top 80%? Explain.

2. Is there a difference between the 80th percentile and the lower 80%? Explain.

3. Refer to the "Cumulative Relative Frequency Graphs" section on page 86 to answer the following questions:

    a. Explain how to find the *relative frequency* column.

    b. Explain how to find the *cumulative frequency* column.

    c. Explain how to find the *cumulative relative frequency* column.

4. Explain how to make a cumulative relative frequency graph.

5. What can a cumulative relative frequency graph be used to describe?

6. Answer the four questions for the *Check Your Understanding* on page 89.

7. Explain how to *standardize* a variable.

8. What information does a *z – score* provide?

9. Explain how to calculate and interpret a z- score.

10. What is the purpose of *standardizing* a variable?

11. Explain the *effects of adding or subtracting a constant* from each observation when transforming data.

12. Explain the effects of *multiplying or dividing by a constant* from each observation when transforming data.

13. Summarize the four steps for *exploring quantitative data* as outlined on page 99.

14. What is a *density curve*?

15. What does the *area* under a *density curve* represent?

16. Where is the *median* of a *density curve* located?

17. Where is the *mean* of a density curve located?

18. Answer questions 1 and 2 for the *Check Your Understanding* on page 103.

2.2 Normal Distributions (pp.110-128)

1. How would you describe the shape of a *Normal curve*? Draw two examples.

2. Explain how the mean and the standard deviation are related to the Normal curve.

3. Define *Normal distribution* and *Normal curve*.

4. What is the abbreviation for a Normal distribution with a mean μ and a standard deviation σ?

5. Explain the *68-95-99.7 Rule*. When does this rule apply?

6. Answer questions 1-3 for the *Check Your Understanding* on page 114.

7. What is the *standard Normal distribution*?

8. What information does the *standard Normal table* give?

9. How do you use the standard Normal table (Table A) to find the area under the standard Normal curve to the left of a given *z-value*? Draw a sketch.

10. How do you use Table A to find the area under the standard Normal curve to the right of a given *z-value*? Draw a sketch.

11. How do you use Table A to find the area under the standard Normal curve between two given *z-values*? Draw a sketch.

12. Summarize the steps on how to solve problems involving Normal distributions as outlined on page 120.

13. When is it appropriate to use Table A "*backwards"?*

14. Describe two methods for assessing whether or not a distribution is *approximately Normal*.

15. What is a *Normal probability plot*?

16. How do you *interpret* a Normal probability plot?

17. When is it appropriate to use the NormalCDF and Inverse Normal functions on the calculator?