Topics Review Sheet for Final Exam

Test #1: Chapters 1-5

1. who, what, when, where, why, and how of a data set
2. categorical data (marginal distributions, percents of categories)
3. basic statistics (mean, sd, hinges, 5 number summary, etc.)
4. reading graphs
   a. pie
   b. bar
   c. histogram
   d. time series
   e. scatterplots
   f. boxplots
   g. stem-and-leaf plots
   h. etc.
5. comparing distributions (shape, center, spread)
6. how measures change with $+/-$ or $\times/\div$
7. calculating z-scores
8. finding normal areas
9. find unknown μ or σ in normal distributions
10. symbols ($\bar{x}$, $\bar{y}$, s, n, Q_1, Q_3, IQR)

Test #2: Chapters 6-8, 11, 13-15

1. reading scatterplots
2. calculate correlation
3. match correlation to graphs
4. regression (residuals, prediction, finding lines, ideas underlying, finding missing values, interpreting slope and intercept, R^2, etc.)
5. special points (high leverage, large residual, outliers, influential)
6. reading residual plots
7. vocabulary from sampling (population, sampling frame, sample, types of samples, types of bias)
8. probability
   a. sample spaces (equally likely or not)
   b. legitimate probability assignments
   c. rules (union, Bayes', complement, independent and conditional events)
   d. definitions (mutually exclusive, disjoint, indpendent)
   e. setting up probability distributions
   f. using tree and Venn diagrams
9. mean, variance, and sd of random variables (from probability distributions or formulas)
10. mean, variance, and sd of linear combinations of independent random variables (know formulas)
11. symbols ($\hat{y}$, $\bar{y}$, s_y, s_x, r, R^2, $\bar{x}$, b_0, b_1, $e = y - \hat{y}$, μ, σ)

Test #3: Chapters 17-22

1. sampling distributions of $\hat{p}$, $\bar{x}$, $\hat{p}_1 - \hat{p}_2$, and $\bar{x}_1 - \bar{x}_2$ (standard deviations of statistics, assumptions)
2. Using the sampling distributions to find probabilities
3. CI (margin of error—concepts and formulas, interpretation, standard error, formulas)
4. HT (setting up hypotheses—including parameters, conditions, statistics, p-values—calculating and interpreting)
5. Errors in HT and power (probability statements)
6. symbols (α, β, $1 - \alpha$, $1 - \beta$ =Power)
7. t-distribution (probability, p-values, percentiles, using t-table)
8. formulas (CI, ME, test stats)