

To Follow video resources press control then click with mouse. Khan = Khan Academy Video YouTube = various YouTube Videos Dixon or not indicated = a YouTube video by Beth Dixon based on a PowerPoint by Vicki Borlaug			
	Topics	Page(s)	Problems
1-3	Sampling Video Resources: Discrete and continuous random variables (Khan) Quantitative vs. Qualitative Data (YouTube) Qualitative vs. Quantitative Data (YouTube) Simple Random Sample Using TI-84 (Dixon) Simple Random Samples part 2 (Dixon)	27-28	2, 3
1-4	Sampling Methods Systematic, Cluster, Stratified, Simple Random, Convenience Video Resources: Types of Sampling Part 1 Types of Sampling Part 2 Types of Sampling Practice	36-37	4 -10, 11-17 odd
2-2	Frequency & Relative Frequency Distribution Tables Construct & Interpret Histograms Stem-Leaf Plots Video Resources: Frequency Distributions and Histograms part 1 Frequency Distribution and Histograms Part 2 Frequency and History Distributions Part 3 Frequency and History Distributions Part 4 Frequency and History Distributions Part 5 Frequency and History Distributions Part 6 Interpreting Histograms Building Classes for Frequency Distributions	91-97	1-3, 7, 11, 12, 27, 29- 31

3-1	<p>Measures of <u>Central Tendency</u></p> <p>Mean, Median, and Mode</p> <p>Distinguish between symbols for a population data versus and a sample data.</p> <p>Video Resources: Mean Median Mode and Midrange Part 1 Mean Median Mode and Midrange Part 2 Mean Median Mode and Midrange Part 3 Mean Median Mode and Midrange Part 4 Mean Median Mode and Midrange Part 5</p>	124-129	7, 9, 11, 13, 19, 25,50
3-2	<p>Measures of <u>Dispersion for Sample Data</u></p> <p>Sample Variance and Standard Deviation</p> <p><u>Empirical Rule (68-95-99.7)</u></p> <p>Video Resources: Variance and Standard Deviation Sample Standard Deviation and Variance with the TI-84 Calculator TI-84 Demo for Variance and Standard Deviation Range vs. Standard Deviation Part 1 Range vs. Standard Deviation Part 2 Empirical Rule Part 1 Empirical Rule -- Part 2</p>	141-143	6, 8, 11, 14, 15, 21, 29-32
3-4	<p>Measures of Position and Outliers</p> <p>z-scores</p> <p>Interpret quartiles, percentiles, IQR, Fences, and Outliers</p> <p>Video Resources: Z-Values -- Comparing Values on Different Scales Part 1 Z-Values -- Comparing Values on Different Scales Part 2</p>	159-162	1 ,3, 4, 7, 8, 11, 12, 17, 18, 21 a, b, c

3-5	<p>5-Number Summary</p> <p>Construct and Interpret Boxplots</p> <p>Video Resources: Box Plots Part 1 Box Plots Part 2 Box Plots Part 3 Box Plot Practice</p>	168-170	3, 4, 6 a-c, 7, 9
4.1	<p>Correlation of Two Variables (TI-84, page 193)</p> <p>Scatterplots: Explanatory versus Response Variables</p> <p>Linear correlation coefficients</p> <p>Test for significance (Table II, page A-2)</p> <p>Video Resources: Introduction to Correlation – Part 1 Introduction to Correlation – Part 2 Introduction to Correlation – Part 3 Introduction to Correlation – Part 4 Correlation in Linear Relationships– Part 1 Correlation in Linear Relationships– Part 2 Correlation in Linear Relationships– Part 3 Correlation in Linear Relationships– Part 4 Linear Regression Practice – Part 1 Linear Regression Practice – Part 2 Linear Regression Practice – Part 3</p>	186-190	<p>See TI-84 page 193.</p> <p>9-11, 17, 19, 32 ,</p>
4.2	<p>Linear Correlation of Variables (TI-84)</p> <p>Make and apply scatterplot graphs.</p> <p>Determine the linear regression equation</p> <p>Predict values based on relation of variables. See example 3, page 199.</p> <p>Video Resources: Linear Regression with Alien Data – Part 1 Linear Regression with Alien Data – Part 2 Linear Regression with Alien Data – Part 3 Linear Regression with Alien Data – Part 4 Linear Regression Practice – Part 1 Linear Regression Practice – Part 2 Linear Regression Practice – Part 3</p>	204-206	<p>19 , 20 (a, b, c)</p> <p>22 a-c</p>

5.1	<p>Basic Probability</p> <p>Classical method, see example 7, page 239. Unusual events <i>often used</i> as less than a 5% probability. See page 235.</p> <p>Video Resources: Basic Probability Part 1 Basic Probability Part 2 Basic Probability Part 3 Basic Probability part 4 Law of Large Numbers Part 1 Law of Large Numbers Part 2</p>	242-243	1-4, 11, 27-29.
5.2	<p>Addition Rule and Complements</p> <p>Identify events as disjoint or not disjoint. $P(E \text{ or } F) = P(E) + P(F)$ Know how to make $P(E \text{ or } F) = P(E) + P(F) - P(E \text{ and } F)$ use a contingency table. Complementary Events: $P(\bar{E}) = 1 - P(E)$</p> <p>Video Resources: Addition Rule of Probability Part 1 Addition Rule of Probability Part 2 Addition Rule Practice Problems</p>	254-257	1, 2, 30, 31, 32 c, 33d, 39c, 42, 46
5.3	<p>Independency and Multiplication Rule $P(E \text{ and } F) = P(E) \cdot P(F)$</p> <p>Compute probability for “at least one” probability case using the complement rule: $P(\text{at least 1}) = 1 - P(0)$ (see p 253)</p> <p>Video Resources: Multiplication Rule -- Conditional Probability (Part 1) Multiplication Rule -- (Part 2) Multiplication Rule -- (Part 3) Multiplication Rule -- (Part 4)</p>	262-264	1-3, 7c, 9, 11-13, 17 a, b; 19 a, b 23 a b; 27 a, b; 29

5.4	<p>General Multiplication Rule and Conditional Probability General Multiplication Rule for Independent and Dependent events Conditional Probability</p> <p>Video Resources: Mixed Probability Practice Part 1 Mixed Probability Practice Part 2 Sampling With and Without Replacement Complement and At Least One Part 1 Complement and At Least One Part 2 Complement and At Least One Part 3 Practice Problems for At Least One</p>	270-272	11, 17 a, b; 18a.b; 25
5.5	<p>Counting Techniques... "number of ways" Factorial symbol: $n!$</p> <ul style="list-style-type: none"> • Multiplication Rule: $n \cdot p \cdot q \dots$ • Permutations—ordered arrangements... rank, 1st, 2nd, 3rd ... ${}_n P_x = \frac{n!}{(n-x)!}$ <ul style="list-style-type: none"> • Combinations--- order not important... number of groups: committees, juries ${}_n P_x = \frac{n!}{(n-x)!x!}$ <p>Video Resources: Counting Part 1 Counting Part 2 Counting Part 3 Counting Part 4 Formulas on Combinations and Permutations Part 1 Formulas on Combinations and Permutations Part 2 Formulas on Combinations and Permutations Part 3</p>	283-284	1-36, 39,40, 41, 45-50, 57, 58

6.1	<p>Discrete Random Variables</p> <p>Identify discrete versus continuous random variables</p> <ul style="list-style-type: none"> • Calculate mean, variance and standard deviation. • Identify events as usual or unusual <p>Video Resources:</p> <p>Introduction to Probability Distributions Part 1 Introduction to Probability Distributions Part 2 Introduction to Probability Distributions Part 3 Introduction to Probability Distributions Part 4 Introduction to Probability Distributions Part 5 Probability Distributions -- Book Cart -- Part 1 Probability Distributions -- Book Cart -- Part 2 Probability Distributions -- Ice Cream Expected Value -- Fans -- Part 1 Expected Value -- Fans -- Part 2</p>	305-306	2, 7, 9, 13
6.2	<p>Binomial Probability Distributions</p> <p>Conditions of binomial distribution</p> <p>Apply binomial formula $P(x) = {}_n C_x \cdot p^x \cdot q^{n-x}$</p> <p>Mean and Standard Deviation</p> $\mu_x = n \cdot p; \quad \sigma_x = \sqrt{n \cdot p \cdot q}$ <p>Usual Boundaries: lower: $\mu - 2\sigma$ upper: $\mu + 2\sigma$</p> <p>Video Resources:</p> <p>At Most vs At Least Binomial Distributions -- Brown Cows -- Part 1 Binomial Distributions -- Brown Cows -- Part 2 Binomial Distributions -- Brown Cows -- Part 3 Binomial Distributions -- Brown Cows -- Part 4 Binomial Distributions -- Brown Cows -- Part 5 Binomial Distributions -- Brown Cows -- Part 6 Binomial Distribution -- Toothpaste - Part 1 Binomial Distribution -- Toothpaste -- Part 2 Binomial Distribution -- Toothpaste -- Part 3 Binomial Distribution -- Toothpaste -- Part 4 Binomial Distribution -- Shooting Hoops Part 1 Binomial Distribution -- Shooting Hoops Part 2 Binomial Distribution -- Shooting Hoops Part 3 Binomial Distribution -- Shooting Hoops Part 4 Binomial Mean and Standard Deviation</p>	320-321	2, 3, 7-10, 17, 23, 35b, 36b, 37d, 39a, 43-49 odd,

7.2	<p><i>Standard Normal Distribution</i> $\mu=0$ and $\sigma=1$ <u>Appendix table: A-11 and A-12</u></p> <p>Distribution of a Sample Value x a.) Determine a proportion or percentage using the standard normal z-table</p> $z = \frac{x - \mu}{\sigma}$ <p>b.) Determine a percentile value: $x = \mu + z \cdot \sigma$</p> <p>Video Resources: Standard Normal Table -- Part 1 Standard Normal Table -- Part 2 Standard Normal Table -- Part 3 Standard Normal Table -- Part 4 Normal Distribution -- Part One Normal Distribution -- Part 2 Normal Distribution -- Finding Probability -- Window Wash Normal Distribution -- Finding X -- Car Wash Normal Distribution -- Tourist</p>	345-348	<p>6, 7, 9 z-scores: 13, 15, 17 probabilities: 23-31 odd; percentiles: 33-36</p> <p>Concepts: 37, 39, 41, 43 a, b, 44a, 47a, 48a, 49a, 50, 56</p>
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8.1	<p>Distribution of the Sample Mean \bar{x}</p> <p>Central Limit Theorem (CLT)</p> $z = \frac{\bar{x} - \mu_x}{\sigma / \sqrt{n}}$ <p>(σ / \sqrt{n} is the standard error of the mean)</p> <p>If a distribution is not described as normal, or approximately normal, a sample size of $n \geq 30$ is required for use of the central limit theorem for the distribution of sample means problems.</p> <p>Video Resources: Introduction to Sampling Distribution of Means - Fish What is the CENTRAL LIMIT THEOREM? and why is it so hard to understand?? (YouTube) Sampling Distributions and the Central Limit Theorem (YouTube) Central Limit Theorem Practice Problem #1 (YouTube) Sampling Distribution of Means -- Buckets of Water Sampling Distribution of Means -- Lawn Mowing Part 1 Sampling Distribution of Means -- Lawn Mowing Part 2 Central Limit Theorem Practice -- Mango Candy</p>	376-378	2, 4, 5, 7, 8, 15, 19, 21 a-d, 24 c, 25 a,b, 27, 28, 37, 38, Compare questions in 7.2 and 8.1.
9.1	<p>Confidence Interval for Population Proportion</p> $p = \frac{x}{n}; \quad p - z_{\frac{\alpha}{2}} \cdot \sqrt{\frac{p \cdot q}{n}} < p < p + z_{\frac{\alpha}{2}} \cdot \sqrt{\frac{p \cdot q}{n}}$ <p><u>Understand the following terms and notation.</u> Point Estimate Confidence Interval; Alpha α Level of Confidence; Margin of Error; Critical Value ($z_{\frac{\alpha}{2}}$)</p> <p>Video Resources: Proportions – Introduction – Part 1 Proportions – Introduction – Part 2 Proportions – Introduction – Part 3 and 4 were compromised during taping and will have to be taped again. They should be available in the future. Proportions – Introduction – Part 5 Confidence Intervals on Proportions - Karate</p>	401-402	7-10, 15-17, 23, 25, 27, 29 , 30

9.2	<p>Construct a confidence interval for population mean when standard deviation is not known. (t-distributions)</p> $\bar{x} - t_{\frac{\sigma}{2}} \cdot \frac{s}{\sqrt{n}} < \mu < \bar{x} + t_{\frac{\sigma}{2}} \cdot \frac{s}{\sqrt{n}}$ <p>Determine sample size (n) for desired level of confidence.</p> $n = \left(\frac{t_{\frac{\alpha}{2}} \cdot s}{E} \right)^2 \text{ Round } n \text{ up to nearest number}$ <p>Video Resources: Confidence Interval for Mean -- T-distribution -- Part 1 Confidence Interval for Mean -- T-distribution -- Part 2 Confidence Interval for Mean -- Airport Sample Size to Estimate the Mean Confidence Interval for Mean -- Graphical- Part 1 Confidence Interval for Mean -- Graphical- Part 2</p>	412-417	<p>7, 8, 19a, 20a, 22 a, b, 24, 25, 31, 33, 34, 39 a, b,</p> <p>Sample size 45, 46, 47a, 48a,</p> <p>What is a t-value?</p>
10.1	<p>Language of Hypothesis Testing</p> <p>Null and Alternative Hypothesis “Left-tail test, right-tail test, two-tail test” Level of Significance Be able to sketch, shade, and label the curve as needed in the hypothesis test.</p> <p>Type I and Type II Errors Type I: reject the null when it is true Type II: do not reject the null when the alternative is true <i>See Figure 1 page 432.</i></p> <p>Video Resources: Introduction to Hypothesis Testing -- Part 1 Introduction to Hypothesis Testing -- Part 2</p>	434-435	<p>1-7, 13, 17, 18, 25,</p> <p>26, 33, 34, 35a,</p> <p>36a, b,</p>

10.3	<p>Hypothesis Testing for a Population Mean</p> <ul style="list-style-type: none"> • Identify the claim • Write null and alternative hypothesis • Graph, label and shade appropriate area(s) for rejection of the null hypothesis. • Calculate the test statistics using data . $t = \frac{\bar{x} - \mu_0}{\frac{s}{\sqrt{n}}}$ • Apply both the classical and <i>p-value</i> methods for reaching a conclusion. • Classical Method: Compare the critical value and the test statistics. • Use calculator to determine the p-value. • Reject the null hypothesis when $P\text{-value} < \alpha$. <p>Video Resources: Hypothesis Testing on the Mean -- Part 1 Hypothesis Testing on the Mean -- Part 2 Hypothesis Testing on the Mean -- Part 3 Hypothesis Testing on the Mean -- Part 4 Hypothesis Testing on Mean – Summary Hypothesis Testing on the Mean – P-values – Part 1 Hypothesis Testing on the Mean – P-values – Part 2 Hypothesis Testing on the Mean – P-values – Part 3 Hypothesis Testing on the Mean – P-values – Part 4 Classical Vs. P-Value Methods for Hypothesis Testing Classical Vs. P-Value Methods for Hypothesis Testing Part 2</p>	454-457	<p>1, 3-8, 11, 12-20 (show all steps and sketch of the curve)</p> <p>24 (a. assume a normal distribution exists) do part b.</p>
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