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| **Year** | **Question** | **Content** | **Chapter** |
| 2015 | 1 | * Describing a distribution * Effect of changing a value on mean and median | 1 |
| 2015 | 1 | * Comparing boxplots * Using boxplots to make decisions | 1 |
| 2011B | 1 | * Estimating medians of histograms * Comparing histograms * Relationship between mean and median | 1 |
| 2010B | 1 | * Comparing distributions (boxplots) * Stemplots * Comparing boxplots and stemplots | 1 |
| 2007B | 1 | * Constructing a stemplot * Summarizing a distribution of univariate data (stemplot) * Bimodal distribution | 1 |
| 2006 | 1 | * Comparing distributions of univariate data (dotplots) * Comparing variability * Measuring center | 1 |
| 2005B | 1 | * Describing shape of a stemplot * Mean vs. Median * Midrange | 1 |
| 2004 | 1 | * Constructing parallel boxplots * Outliers * Properties of boxplots * Mean vs. Median | 1 |
| 2002B | 5 | * Constructing parallel boxplots * Comparing distributions of univariate data (boxplots) | 1 |
| 2001 | 1 | * Identifying outliers and unusual values | 1 |
| 2000 | 3 | * Graphing and comparing two frequency distributions | 1 |
| 2011 | 1 | * Assessing normality from summary statistics * Calculating and interpreting a *z*-score * Using *z*-scores to make a comparison | 2 |
| 2009B | 1 | * Estimating median and *IQR* from a boxplot * Linear transformations of data | 2 |
| 2008 | 1 | * Comparing distributions with boxplots * Linear transformations of data * Effect of shape on the relationship between mean and median | 2 |
| 2006B | 1 | * Interpreting cumulative relative frequency graphs | 2 |
| 1997 | 1 | * Interpreting cumulative relative frequency graphs * Finding the median and IQR from a cumulative relative frequency graph * Comparing center and spread | 2 |
| 2016 | 6 | * Describing scatterplots * Interpreting slope from computer output * Estimating medians from a scatterplot * Accounting for a third variable | 3 |
| 2015 | 5 | * Describing a scatterplot * Classifying observations * Making a prediction | 3 |
| 2014 | 6 | * Calculate, interpret, and identify residuals * Comparing associations * Multiple regression and variable selection | 3 |
| 2013 | 6 | * Comparing distributions * Describing trends in a scatterplot (timeplot) * Moving averages | 3 |
| 2012 | 1 | * Describing a scatterplot with non-linear association * Influential points * Determining which points meet a consumer’s criterion | 3 |
| 2007B | 4 | * Graphing a least-squares regression line * Calculating a residual * Influential points | 3 |
| 2005 | 3 | * Assessing linearity with residual plots * Understanding and interpreting slope * Interpreting r2 * Extrapolation | 3 |
| 2003B | 1 | * Influential points | 3 |
| 2002B | 1 | * Making a scatterplot * Interpreting correlation * Assessing Linearity * Interpreting r2 | 3 |
| 2002 | 4 | * Using regression output to state the equation of a least-squares regression line * Finding and interpreting the correlation from computer output * Clusters and influential points | 3 |
| 2000 | 1 | * Describing scatterplots | 3 |
| 1999 | 1 | * Using a residual plot to assess linearity * Identifying slope and y-intercept from computer output * Interpreting slope and y-intercept * Making a prediction using a least-squares regression line * Using residuals to estimate actual values | 3 |
| 1998 | 2 | * Making a histogram of one variable from a scatterplot * Describing a histogram * Describing a scatterplot | 3 |
| 1998 | 4 | * Using regression output to state the equation of a least-squares regression line * Analyzing patterns in a residual plot (Note: the residual plot uses predicted values on the horizontal axis instead of the values of the explanatory variable | 3 |
| 2016 | 3 | * Explanatory/response variables * Experiment vs. observational study * Confounding | 4 |
| 2014 | 4 | * Mean vs. median * Sampling methods and bias | 4 |
| 2013 | 2 | * Convenience sampling and bias * Selecting an SRS with a random number generator * Stratified sampling | 4 |
| 2011B | 2 | * Observational study vs. experiment * Scope of inference * Purpose of random assignment | 4 |
| 2011 | 3 | * Cluster sampling * Stratified sampling | 4 |
| 2010 | 1 | * Treatments * Experimental units * Response variable * Scatterplots and linearity | 4 |
| 2010B | 2 | * Simple random sampling * Stratified random sampling | 4 |
| 2009 | 3 | * Random assignment * Non-random assignment | 4 |
| 2008 | 2 | * Non-response bias | 4 |
| 2007 | 2 | * Control groups * Random assignment * Blocking | 4 |
| 2007B | 3 | * Blocking * Randomization | 4 |
| 2006 | 5 | * Treatments * Randomization * Sources of variability * Generalizibility | 4 |
| 2006B | 5 | * Response variable * Treatments * Experimental units * Randomization * Replication * Confounding | 4 |
| 2005 | 1 | * Comparing distributions (stemplots) * Generalizability of results * Sampling variability | 4 |
| 2004 | 2 | * Blocking * Random assignment within blocks | 4 |
| 2004B | 2 | * Selection and response bias | 4 |
| 2003 | 4 | * Random assignment * Control groups * Generalizibility | 4 |
| 2002 | 2 | * Matched pairs experiment * Double-blind | 4 |
| 2002B | 3 | * Designing experiment * Blocking | 4 |
| 2001 | 4 | * Blocking * Purpose of randomization | 4 |
| 2000 | 5 | * Designing experiment * Blocking * Double-blind | 4 |
| 1999 | 3 | * Experiment vs. observational study * Confounding * Cause and effect | 4 |
| 1997 | 2 | * Designing experiment * Blocking | 4 |
| 2014 | 2 | * General multiplication rule * Informal inference * Simulation design | 5 |
| 2011 | 2 | * Conditional probability from a two-way table * Independence of two events * Segmented bar charts and independence | 5 |
| 2009B | 2 | * Conditional probability * Multiplication rule | 5 |
| 2003B | 2 | * Two-way tables * Conditional probability * Independence | 5 |
| 2001 | 3 | * Simulation | 5 |
| 1997 | 3 | * Conditional probability | 5 |
| 2016 | 4 | * Multiplication rule * Geometric probability calculation * Informal p-value and conclusion | 6 |
| 2015 | 3 | * Discrete probability distributions * Expected value * Conditional probability * Conditional expected value | 6 |
| 2013 | 3 | * Normal probability calculation * Mean and standard deviation of a sum of random variables | 6 |
| 2012 | 2 | * Discrete probability distributions * Expected value of a discrete random variable * Application of expected value * Normal probability calculation | 6 |
| 2011B | 3 | * Geometric probability * Binomial probability * Cumulative binomial probability | 6 |
| 2010B | 3 | * Binomial distribution * Expected value * Binomial calculations | 6 |
| 2010 | 4 | * Mean and standard deviation of a binomial distribution * Binomial calculations * Stratified sampling | 6 |
| 2008 | 3 | * Expected value * Basic probability rules | 6 |
| 2008B | 5 | * Combining normal random variables * Normal calculations | 6 |
| 2006B | 3 | * Normal calculations * Binomial calculations * Inverse normal calculations | 6 |
| 2005 | 2 | * Expected value * Median of a discrete random variable * Relationship of mean and median | 6 |
| 2005B | 2 | * Mean and standard deviation of a discrete random variable * Combining independent random variables * Linear transformations of a random variable | 6 |
| 2004 | 3 | * Binomial conditions * Multiplication rule * Interpreting probability * Generalizability | 6 |
| 2004 | 4 | * Conditional probability * Expected value | 6 |
| 2003 | 3 | * Normal calculations * Binomial calculations | 6 |
| 2002B | 2 | * Addition rule * Expected value * Conditional probability | 6 |
| 2002 | 3 | * Normal calculations * Combining independent random variables | 6 |
| 2001 | 2 | * Expected value | 6 |
| 1999 | 4 | * Normal calculations * Binomial calculations * Outlier rules | 6 |
| 1999 | 5 | * Sample space * Expected value | 6 |
| 1998 | 6 | * Normal calculations * Simulation * Expected value | 6 |
| 2015 | 6 | * Choosing a sampling method * Describing distribution of a sample * Describing distribution of a sample mean * Comparing variability of sampling distributions | 7 |
| 2014 | 3 | * Normal probability calculation * Sampling distribution of * Probability rules | 7 |
| 2012 | 6 | * Selecting a SRS * Standard error of the mean for a simple random sample * Standard error of the mean for a stratified random sample * How stratified random sampling reduces variability | 7 |
| 2010 | 2 | * Sampling distribution of the sample mean * Probability calculation for a total | 7 |
| 2009 | 2 | * Inverse Normal calculation * Binomial probability calculation * Probability calculation for the sample mean | 7 |
| 2008B | 2 | * Properties of estimators: bias and variability | 7 |
| 2007B | 2 | * Addition rule * Binomial probability calculation * Sampling distribution of the sample mean | 7 |
| 2007 | 3 | * Sampling distribution of the sample mean * Probability calculation for the sample mean * Central Limit Theorem | 7 |
| 2006 | 3 | * Normal probability calculation * Binomial probability calculation * Probability calculation for a sample mean | 7 |
| 2004B | 3 | * Normal probability calculation and interpretation * Probability calculation and interpretation for a sample mean | 7 |
| 1998 | 1 | * Sampling distribution of the sample mean * Effect of sample size on shape of sampling distribution | 7 |
| 2015 | 2 | * Using confidence intervals to make decisions * Effect of quadrupling sample size on margin of error | 8 |
| 2013 | 1 | * Interpreting stemplots * One sample *t* interval for a population mean | 8 |
| 2011B | 5 | * One-sample *z* interval for a proportion * Using a CI to assess a claim * Determining sample size | 8 |
| 2011 | 6 | * 1 sample *z* interval for a proportion * Tree diagrams * Using information from tree diagram to create a new confidence interval | 8 |
| 2010 | 3 | * Interpreting confidence level * Using confidence intervals to make decisions * Determining sample size (CI for a proportion) | 8 |
| 2010B | 4 | * One sample *z*-interval for a population proportion * Effect of sampling without replacement | 8 |
| 2008B | 3 | * Determining sample size (CI for a mean) * Practical constraints | 8 |
| 2005 | 5 | * Sources of bias in a survey * Determining sample size (CI for a proportion) * Stratified random sampling | 8 |
| 2003 | 6 | * Interpreting a graph * One-sample *z*-interval for a population proportion * Using confidence intervals to make decisions | 8 |
| 2003B | 6 | * One-sample *z*-interval for a population proportion * Interpreting confidence level * Determining sample sizes for different sub-groups (CI for a proportion) | 8 |
| 2002 | 1 | * Precision of interval estimates * Using confidence intervals to make decisions | 8 |
| 2002B | 4 | * One-sample *z*-interval for a population proportion * Interpreting confidence level * Using confidence intervals to make decisions | 8 |
| 2000 | 2 | * Conditions for a one-sample *t*-interval for a population mean | 8 |
| 2000 | 6 | * One-sample *z*-interval for a population proportion * Combining Normal random variables * Independence * Anticipating patterns in a scatterplot | 8 |
| 2014 | 5 | * Paired *t* test | 9 |
| 2012 | 5 | * Type II error and consequence * Conclusion to a significance test for a single proportion * Voluntary response bias | 9 |
| 2009B | 4 | * Random assignment in blocks * Increasing the power of a test | 9 |
| 2009B | 5 | * One sample *t* test for a mean * Using simulation to test a standard deviation | 9 |
| 2009 | 6 | * Stating hypotheses * Relationship between mean and median * Testing for skewness * Creating a test statistic | 9 |
| 2008B | 4 | * Experimental design * Type I and II errors and consequences | 9 |
| 2008B | 6 | * Interpreting scatterplots * Paired *t* test * Creating a classification rule | 9 |
| 2007 | 4 | * Paired *t* test | 9 |
| 2006B | 4 | * Paired *t* test | 9 |
| 2006B | 6 | * Stating hypotheses * Conditions for a one sample *z* test for a proportion * Binomial probability calculations * Significance levels * Calculating *p*-values and drawing conclusions * Improving a study | 9 |
| 2005 | 4 | * One sample *z* test for a proportion | 9 |
| 2005B | 4 | * Paired *t* interval * Using a confidence interval to assess significance | 9 |
| 2005B | 6 | * One sample *t* test for a mean * Normal probability calculation * Multiplication rule for independent events * Using simulation to estimate a probability | 9 |
| 2004 | 6 | * One sample *t* interval for a mean * Relationship between confidence intervals and significance tests * One-sided confidence intervals | 9 |
| 2003 | 1 | * Constructing boxplots * Using boxplots to compare variability * Stating hypotheses | 9 |
| 2003 | 2 | * Stating hypotheses * Type I and II errors and consequences | 9 |
| 2001 | 5 | * Paired *t* test | 9 |
| 1999 | 6 | * One sample *t* test for a mean * Paired *t* test * Displaying relationships with scatterplots | 9 |
| 1998 | 5 | * One sample z test for a proportion * Effect of nonresponse | 9 |
| 1997 | 5 | * Paired t test | 9 |
| 2016 | 5 | * One sample z interval for a proportions * Reasons for the large counts condition * Why a 2 sample *z* interval is not OK | 10 |
| 2015 | 4 | * Two sample z test for a difference in proportions (experiment) | 10 |
| 2013 | 5 | * Scope of inference * Conditions for a two-sample *z* test for a difference in proportions * Logic of inference, simulation of sampling distribution | 10 |
| 2012 | 3 | * Comparing histograms * Conditions for two-sample *t* procedures | 10 |
| 2012 | 4 | * Two-sample *z* test for a difference in proportions | 10 |
| 2011 | 4 | * Two-sample *t* test for the difference between two means | 10 |
| 2010 | 5 | * Two-sample *t* test for the difference between two means | 10 |
| 2009B | 3 | * Two-sample *z* test for the difference between two proportions | 10 |
| 2009 | 4 | * Two-sample *t* interval for the difference between two means * Using a confidence interval to test hypotheses | 10 |
| 2009 | 5 | * Interpreting a *P-*value for a two-sample *z* test for the difference between two proportions * Using a *P-*value to make a conclusion * Type I and Type II errors and consequence | 10 |
| 2009B | 6 | * Double-blind experiments * Two-sample *z* interval for the difference between two proportions * Relative risk | 10 |
| 2008B | 1 | * Constructing and comparing dotplots * Logic of hypothesis tests | 10 |
| 2008 | 4 | * Constructing and interpreting scatterplots * Standard error of the average of two proportions | 10 |
| 2007 | 1 | * Interpreting standard deviation * Comparing center * Using a confidence interval to test hypotheses | 10 |
| 2007 | 5 | * Experiment versus observational study * Stating hypotheses * Two-sample *z* test for the difference between two proportions (conditions only) * Interpreting a *P-*value and making a conclusion | 10 |
| 2007B | 5 | * Two-sample *t* test for the difference between two means | 10 |
| 2006B | 2 | * Two-sample *z* interval for the difference between two proportions * Using a confidence interval to test hypotheses | 10 |
| 2006 | 4 | * Two-sample *t* interval for the difference between two means * Using a confidence interval to test hypotheses | 10 |
| 2005B | 3 | * Completely randomized design versus matched pairs design * Two-sample *t* test versus paired *t* test | 10 |
| 2005 | 6 | * Two-sample *t* interval for the difference between two means * Constructing and interpreting an interaction plot | 10 |
| 2004B | 4 | * Two-sample *t* interval for the difference between two means * Two-sample versus paired *t* interval | 10 |
| 2004B | 5 | * Boxplots * One-sample *t* interval for a mean (conditions only) * Two-sample *t* test for the difference between two means (conditions only) | 10 |
| 2004B | 6 | * Two-sample *z* test for the difference between two proportions * Estimating a total * Random condition | 10 |
| 2003B | 3 | * Experiment versus observational study * Two-sample *z* test for the difference between two proportions (identification and hypotheses only) | 10 |
| 2003B | 4 | * Random assignment * Control groups * Choosing a correct inference procedure * Sources of variability | 10 |
| 2002 | 5 | * Stating hypotheses * Two-sample *t* test for the difference between two means | 10 |
| 2002 | 6 | * One-sample *z* interval for a proportion * Interpreting confidence level * Two-sample *z* test for the difference between two proportions * Pooling | 10 |
| 2000 | 4 | * Two-sample t test for the difference between two means * Inference about cause and effect | 10 |
| 1997 | 4 | * Two-sample z test for the difference between two proportions | 10 |
| 2016 | 2 | * Chi-square test for homogeneity * Follow-up analysis | 11 |
| 2014 | 1 | * Conditional relative frequency * Association between categorical variables * Chi-square test of independence | 11 |
| 2013 | 4 | * Chi-square test for independence | 11 |
| 2011B | 4 | * Chi-square test for independence * Type I and Type II errors | 11 |
| 2010B | 5 | * General addition rule * Conditional probability * Independence * Chi-square test for independence | 11 |
| 2010 | 6 | * Graphing and comparing distributions * Evaluating and using an unfamiliar test statistic | 11 |
| 2009 | 1 | * Graphing categorical data * Describing an association between categorical variables * Choosing a correct inference procedure * Stating hypotheses | 11 |
| 2008 | 5 | * Chi-square test for goodness-of-fit * Follow-up analysis | 11 |
| 2006 | 6 | * Stating hypotheses * Calculating a test statistic and *p-*value * Rejection regions * Identifying simulated distributions of a test statistic | 11 |
| 2004 | 5 | * Chi-square test for independence * Scope of inference | 11 |
| 2003 | 5 | * Chi-square test for independence | 11 |
| 2003B | 5 | * Multiplication rule for independent events * Expected value * Chi-square goodness-of-fit test | 11 |
| 2002B | 6 | * Two-sample *t* test * Chi-square test for homogeneity * Comparing distributions using graphs | 11 |
| 1999 | 2 | * Chi-square test for independence | 11 |
| 1998 | 3 | * Methods of random assignment * Choosing the correct inference procedure | 11 |
| 2011 | 5 | * Regression output * Interpreting slope * Meaning of * *t* test for slope (conclusion only) | 12 |
| 2011B | 6 | * Interpreting slope * Extrapolation * Sampling distribution of  in a regression context * Optimal design for estimating slope | 12 |
| 2010B | 6 | * Interpreting the slope of a least-squares regression line * Interpreting a residual * Using the residuals to estimate an effect * Testing for a difference between two slopes using a confidence interval * Using two different least-squares regression lines to estimate an effect | 12 |
| 2008 | 6 | * Two-sample *t* test for a difference in means * Stating the equation of a least-squares regression line from computer output * Interpreting the slope of a least-squares regression line * *t* test for a slope * Comparing inference methods | 12 |
| 2007 | 6 | * Interpreting the slope of a least-squares regression line * Using a model with no constant term * *t* test for slope with :  = 1 * Graphing a multiple regression model with an indicator variable * Interpreting the coefficients of a multiple regression model | 12 |
| 2007B | 6 | * Two-sample *z* test for a difference of proportions * Confidence interval for slope * Using a confidence interval to make a decision * Using transformed data and a least-squares regression line to make predictions | 12 |
| 2006 | 2 | * Stating the equation of a least-squares regression line from computer output * Interpreting the standard deviation of the residuals * Interpreting the standard error of the slope | 12 |
| 2005B | 5 | * Stating the equation of a least-squares regression line from computer output * Interpreting the slope and *y* intercept * Confidence interval for slope | 12 |
| 2004B | 1 | * Describing a scatterplot * Interpreting *r2* * Interpreting a residual plot for a least-squares regression line using transformed data | 12 |
| 2001 | 6 | * Making graphs and comparing two distributions * *t* test for slope * Classifying a new observation | 12 |
| 1997 | 6 | * Making predictions using least-squares regression lines, including transformed data * Determining if models are appropriate * Creating a better model | 12 |