Business Statistics: A First Course, 2nd Cdn. Ed. **(Sharpe)**
Part 1 Exploring and Collecting Data

Part 1 Chapter 1: Statistics, Data, and Decisions

1 Quiz A

1) The mission of a Canadian research firm is to "explore the impact of the Internet on families, communities, work, home, and daily life." In August - September 2013 the researchers in the firm conducted telephone interviews with a sample of Canadian adults aged 18 and older about online shopping. Describe the W's for the information given.
• Who:
• What:
• When:
• Where:
• How:
• Why:
Answer: Who: American adults aged 18 and older
What: Online shopping
When: August - September 2007
Where: United States
How: Telephone interviews
Why: To explore the impact of the internet on daily life, specifically shopping
Type: ES
Objective: 1

2) What is Statistics?
Answer: Statistics is a way of reasoning, along with a collection of tools and methods, designed to help us understand the world.
Type: SA
Objective: 1

3) What are Data?
Answer: Data are values along with their context
Type: SA
Objective: 1

4) The following data table displays some of the data collected by a Canadian research firm about online shopping. List the variables in the data set and indicate whether each variable is categorical or quantitative. If the variable is quantitative, give its unit of measurement.

Age	*Gender*	*Household Income*	*Participated in online auction?*	*Monthly amount spent online*	*Time (hours) per week browsing online retailers*
25	Male	$55 000	Yes	$250	6
47	Female	$60 000	No	$50	4
38	Female	$110 000	No	$120	10
30	Male	$62 000	No	$75	4

Answer: Categorical: Gender, Participated in online auction?
Quantitative: Age (years), Household income ($), Monthly online spending ($), Browsing time per week (hours).
Type: ES
Objective: 1

5) In addition to the variables listed above, data were also collected on the following variables. Indicate whether each variable is nominal or ordinal.
- *Region* (Urban, Suburban, Rural)
- *Education* (Less than High School, High School, College, and College +)
- *Marital Status* (Single, Widowed, Divorced, Married)

Answer: Region: Nominal
Education: Ordinal
Marital Status: Nominal
Type: ES
Objective: 1

6) For each of the following data, indicate whether the data are cross-sectional or time series:
- *Weekly receipts at a clothing boutique*
- *Monthly demand for an automotive part*
- *Percentage of adults who bank online*

Answer: Weekly receipts at a clothing boutique: Time series
Monthly demand for an automotive part: Time series
Percentage of adults who bank online: Cross-sectional
Type: ES
Objective: 3

2 Quiz B

1) The Therapeutic Products Directorate (TPD) of Health Canada is responsible for assessing the safety, efficacy and quality of a drug entering the Canadian market (http://www.hc-sc.gc.ca/). TPD routinely compares drugs in terms of effectiveness and safety. In summer 2010, TPD scientists reviewed drugs used to treat arthritis. Information was reported on convenience of use (how many pills required each day), possible side effects (e.g., dizziness, stomach upset), cost, and ratings of effectiveness in relieving symptoms (very effective, somewhat effective, not effective). Describe the W's for the information given.
• Who:
• What:
• When:
• Where:
• How:
• Why:
Answer: Who: Drugs to treat arthritis currently on the market
What: Convenience of use, side effects, cost, effectiveness ratings
When: Summer 2008
Where: Not specified, probably United States
How: Testing on drugs
Why: Information for potential consumers/patients
Type: ES
Objective: 1

2) The Therapeutic Products Directorate (TPD) of Health Canada is responsible to assess the safety, efficacy and quality of a drug to enter Canadian market (http://www.hc-sc.gc.ca/). *TPD* routinely compares drugs in terms of effectiveness and safety. In summer 2010, TPD scientists reviewed drugs used to treat arthritis. Information was reported on convenience of use (how many pills required each day), possible side effects (e.g., dizziness, stomach upset), cost, and ratings of effectiveness in relieving symptoms (very effective, somewhat effective, not effective). List the variables reported in assessing the safety and efficacy of drugs used to treat arthritis. If the variable is quantitative, give its unit of measurement. If the variable is categorical, indicate whether it is nominal or ordinal.
Answer: Categorical: Side effect (nominal), effectiveness rating (ordinal)
Quantitative: Convenience of use (number of pills), Cost ($)
Type: ES
Objective: 1

3) The Human Resources Department of a large Canadian corporation maintains records on its employees. The table below displays some of these data. List the variables in the data set. Indicate whether each variable is categorical or quantitative. If the variable is quantitative, give its unit of measurement. If the variable is categorical, indicate whether it is nominal or ordinal.

Age	*Employment Category*	*Education*	*Participates in Wellness Program?*	*Monthly amount spent online*
32	Clerical	High School	Yes	$250
52	Professional	College	No	$120
60	Professional	Junior College	Yes	$0
28	Clerical	High School	No	$120

Answer: Categorical: Employment Category (nominal), Education (ordinal), Participation in Wellness Program? (nominal)
Quantitative: Age (years), Paycheck Benefit Deductions ($)
Type: ES
Objective: 1

4) For each of the following, indicate whether the data are cross-sectional or time series:
- *Company quarterly profits*
- *Percentage of American adults who work full time*
- *Historical closing stock prices*

Answer: Company quarterly profits: Time series
Percentage of American adults who work full time: Cross-sectional
Historical closing stock prices: Time series
Type: ES
Objective: 3

5) What is an experiment?
Answer: A study in which the researcher *manipulates* factor levels to assess the effect of the factor on the response.
Type: SA
Objective: 4

6) What are cross-sectional data?
Answer: Data taken from situations that vary over time but measured at a single time instant are said to be a cross-section of the time series.
Type: SA
Objective: 3

3 Quiz C - Multiple Choice

1) In the fall of 2013, a Canadian research firm conducted telephone interviews with a sample of Canadian adults aged 18 and older about online shopping. Canadian adults aged 18 and older constitute the _____ of the study.
A) Who
B) What
C) When
D) Where
E) How
Answer: A
Type: MC
Objective: 1

2) A few of the variables for which data were collected in a *Canadian Research Project* include age, gender, income, number of computers in the household, and number of hours spent shopping online per month. Which of the variables is categorical?
A) Age
B) Gender
C) Income
D) Number of hours spent shopping online
E) Number of computers in the household
Answer: B
Type: MC
Objective: 1

3) The *Internet & Life Project* study also asked respondents to indicate their education level on the following scale: *Less than High School, High School, Some College, College, University.* Which of the following statements is (are) true?
A) Education level is a time series variable.
B) Education level is nominal scaled.
C) Education level is a quantitative variable.
D) Education level is a categorical variable.
E) Education level is both a time series variable and nominal scaled.
Answer: D
Type: MC
Objective: 1

4) In a telephone interview of a sample of Canadians, the researchers asked respondents to indicate their education level on the following scale: *Less than High School, High School, Some College, College +.* Which of the following statements is (are) true?

I. Education level is a categorical variable.
II. Education level is nominal scaled.
III. Education level is ordinal scaled.

A) I only
B) II only
C) III only
D) I and II
E) I and III
Answer: E
Type: MC
Objective: 1

5) The Therapeutic Products Directorate (TPD) of Health Canada is responsible for assessing the safety, efficacy and quality of a drug to enter the Canadian market (http://www.hc-sc.gc.ca/). TPD routinely compares drugs in terms of effectiveness and safety. In summer 2010, TPD scientists reviewed drugs used to treat arthritis. Among the information reported was convenience of use (how many pills required each day) and possible side effects (e.g., dizziness, stomach upset). Convenience of use and possible side effects constitute the _____ of the study.
A) Who
B) What
C) When
D) Where
E) How
Answer: B
Type: MC
Objective: 1

6) What is the "Who" in the TPD study on the effectiveness and safety of drugs used to treat arthritis?
A) Drugs to treat arthritis currently on the market
B) Convenience of use and possible side effects
C) Summer 2008
D) The United States
E) Testing on drugs
Answer: A
Type: MC
Objective: 1

7) In the TPD study on arthritis drugs, possible side effects is what kind of variable?
A) Quantitative
B) Categorical
C) Nominal
D) Quantitative and Nominal
E) Categorical and Nominal
Answer: E
Type: MC
Objective: 1

8) The TPD study on arthritis drugs also took cost into consideration. Cost is
A) a nominal variable.
B) a categorical variable.
C) a quantitative variable.
D) an ordinal variable.
E) an irrelevant variable.
Answer: C
Type: MC
Objective: 1

9) The Human Resources Department of a large Canadian corporation maintains records on its employees. Data are maintained of the following variables: *Age, Employment Category, Education, Whether the employee participates in a wellness program,* and *Paycheck benefit deductions.* Which of these variables are categorical?
A) *Age, Employment Category*, and *Education*
B) *Employment Category, Education*, and *Whether the employee participates in a wellness program*
C) *Education, Whether the employee participates in a wellness program*, and *Paycheck benefit deductions*
D) *Employment Category and Age*
E) *Paycheck Benefit Deductions*
Answer: B
Type: MC
Objective: 1

10) Which of the following is (are) based on cross-sectional data?
A) Company quarterly profits
B) Percentage of American adults who work full time
C) Historical closing stock prices
D) Weekly consumption of gas in a city
E) Daily gas prices
Answer: B
Type: MC
Objective: 3

11) Which of the following is not time series data?
A) Weekly receipts at a clothing boutique
B) Monthly demand for an automotive part
C) Quarterly sales of automobiles
D) Percentage of American adults who work full time
E) Daily gas prices
Answer: D
Type: MC
Objective: 3

12) A company conducted a survey of its employees to determine their level of satisfaction with various company policies. The data collected from this survey are
A) primary data.
B) secondary data.
C) transactional data.
D) census data.
E) quantitative data.
Answer: A
Type: MC
Objective: 3, 4

13) Bell Canada tracks employee turnover annually. It currently has a data set that contains turnover for the past 20 years. What type of data does it have?
A) Cross-sectional data
B) Nominal data
C) Time series data
D) Ordinal data
E) Categorical data
Answer: C
Type: MC
Objective: 3

14) The human resources department at a major high tech company recently conducted an employee satisfaction survey of 100 of its 3000 employees. Data were collected on such variables as age, gender, marital status, current salary, level of overall satisfaction on a scale from 1 to 5, number of years with the company, and job title. Which of the following best describes the overall data set that was generated from the study?
A) Cross-sectional data
B) Time series data
C) Nominal data
D) Quantitative data
E) Categorical data
Answer: A
Type: MC
Objective: 3

15) The human resources department at Bell Canada recently conducted an employee satisfaction survey of 100 of its employees. Data were collected on such variables as age, gender, marital status, current salary, level of overall satisfaction on a scale from 1 to 5, number of years with the company, and job title. Which of the variables would be classified as nominal data?
A) Age and gender
B) Age
C) Age and number of years with the company
D) Gender, marital status, and job title
E) Level of overall satisfaction
Answer: D
Type: MC
Objective: 1

16) The human resources department at Bell Canada recently conducted an employee satisfaction survey of 100 of its employees. Data were collected on such variables as age, gender, marital status, current salary, level of overall satisfaction on a scale from 1 to 5, number of years with the company, and job title. Which of the variables would be considered to be quantitative data?
A) Gender and current salary
B) Age and gender
C) Age, number of years with the company, and current salary
D) Marital status and current salary
E) Level of overall satisfaction on a scale from 1 to 5, number of years with the company, and job title
Answer: C
Type: MC
Objective: 1

17) Tim Hortons conducts a random survey of 1000 customers in their Ottawa outlets on a particular day. For each customer they collect data on the time taken to fill the order, how frequently the customer comes to Tim Hortons in a week, whether the customer purchased only coffee or additional item(s), and the level of overall satisfaction using a scale from 1 to 5. What is the "Who" of this study?
A) The time taken to fill the customer order
B) Whether the customer purchased only coffee or additional item(s)
C) The level of overall satisfaction
D) How frequently the customer comes to Tim Hortons in a week
E) The 1000 randomly chosen customers
Answer: E
Type: MC
Objective: 1

18) A Canadian business school is concerned with the recent drop in female students in its BBA program. It decides to collect data from the admission office on each applicant, including sex of each applicant, age of each applicant, whether or not they were accepted, whether or not they attended, and the reason for not attending (if they did not attend). The school hopes to find commonalities among the female accepted students who have decided not to attend the BBA program. The process for collecting data answers which of the following questions?
A) How
B) Who
C) What
D) When
E) Where
Answer: A
Type: MC
Objective: 1

19) Tim Hortons conducts a random survey of 1000 customers in their Ottawa outlets on a particular day. For each customer they collect data on the time taken to fill the order, how frequently the customer comes to Tim Hortons in a week, whether the customer purchased only coffee or additional item(s), and the level of overall satisfaction using a scale from 1 to 5. The random survey answers which of these questions?
A) How
B) Who
C) What
D) When
E) Where
Answer: A
Type: MC
Objective: 1

20) Tim Hortons conducts a random survey of 1000 customers in their Ottawa outlets on a particular day. For each customer they collect data on the time taken to fill the order, how frequently the customer comes to Tim Hortons in a week, whether the customer purchased only coffee or additional item(s), and the level of overall satisfaction using a scale from 1 to 5. Which of the variables is quantitative?
A) Whether the customer purchased only coffee or additional item(s)
B) The time taken to fill the order, and how frequently the customer comes to Tim Hortons in a week
C) The level of overall satisfaction
D) Whether the customer purchased only coffee or additional item(s) and the level of overall satisfaction
E) The level of overall satisfaction and how frequently the customer comes to Tim Hortons in a week
Answer: B
Type: MC
Objective: 1

21) When a survey uses responses such as *strongly disagree, disagree, neutral, agree, strongly agree*, what type of data are collected?
A) Ordinal data
B) Nominal data
C) Cross-sectional data
D) Time series data
E) Quantitative data
Answer: A
Type: MC
Objective: 1

22) Which of the following is a secondary data source?
A) Conducting a telephone survey
B) Conducting personal interviews
C) Conducting a mail out written survey
D) Using Statistics Canada data
E) Conducting an experiment
Answer: D
Type: MC
Objective: 3, 4

Part 1 Chapter 2: Displaying and Describing Categorical Data

1 Quiz A

A large national retailer of electronics conducted a survey to determine consumer preferences for various brands of digital cameras. The table summarizes responses by brand and gender.

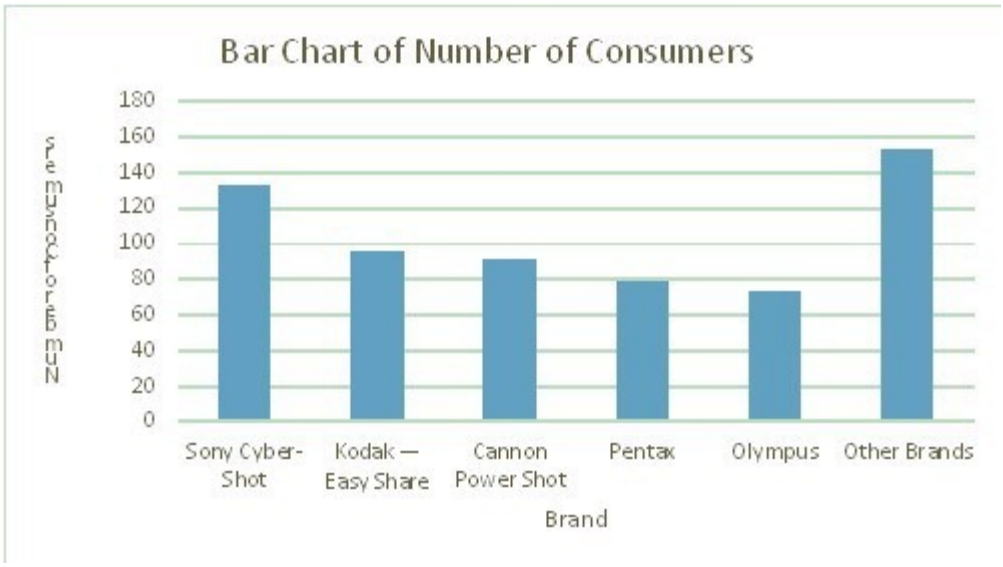
	Female	Male	Total
Sony Cyber-Shot	73	59	**132**
Kodak – Easy Share	49	47	**96**
Canon Power Shot	58	33	**91**
Pentax	37	41	**78**
Olympus	45	28	**73**
Other Brands	86	67	**153**
Total	**348**	**275**	**623**

1) Identify the variables and tell whether each is categorical or quantitative.
Answer: Gender and Brand; both categorical.
Type: ES
Objective: 1, 2

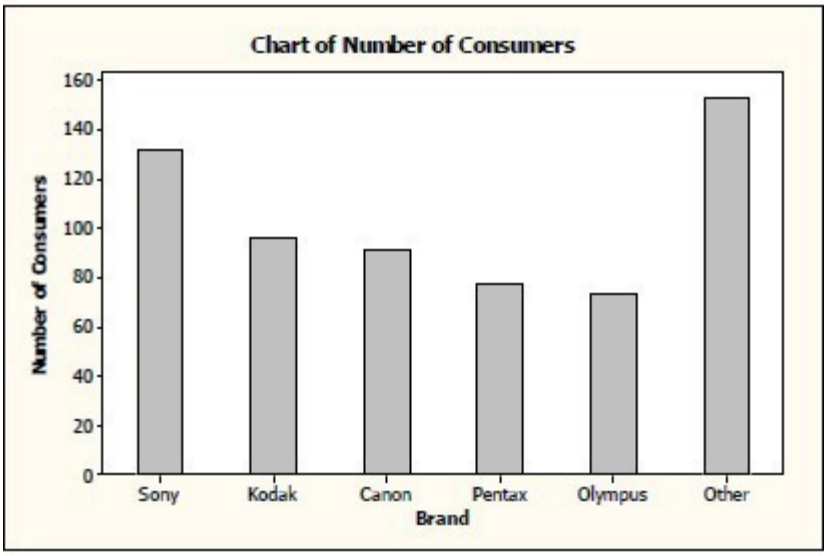
2) Find each of the following percentages.
a. What percent of the responses were males who prefer Pentax?
b. What percent of the male responses prefer Pentax?
c. What percent of the consumers who choose Pentax were males?
Answer:
a. 6.6% (41/623)
b. 14.9% (41/275)
c. 52.6% (41/78)
Type: ES
Objective: 2

3) What is the marginal distribution of brands?
Answer: 132 for Sony Cyber-Shot, 96 for Kodak-Easy Share, 91 for Canon Power Shot, 78 for Pentax, 73 for Olympus and 153 for other brands.
Type: ES
Objective: 3, 4

4) Prepare an appropriate chart to display the marginal distribution of brands.



Answer: Either a bar chart (shown below) or a pie chart is appropriate.



Type: ES
Objective: 1

5) Define area principle.
Answer: A principle that helps to interpret statistical information without distortion by insisting that in a statistical display each data value be represented by the same amount of area.
Type: ES
Objective: 1

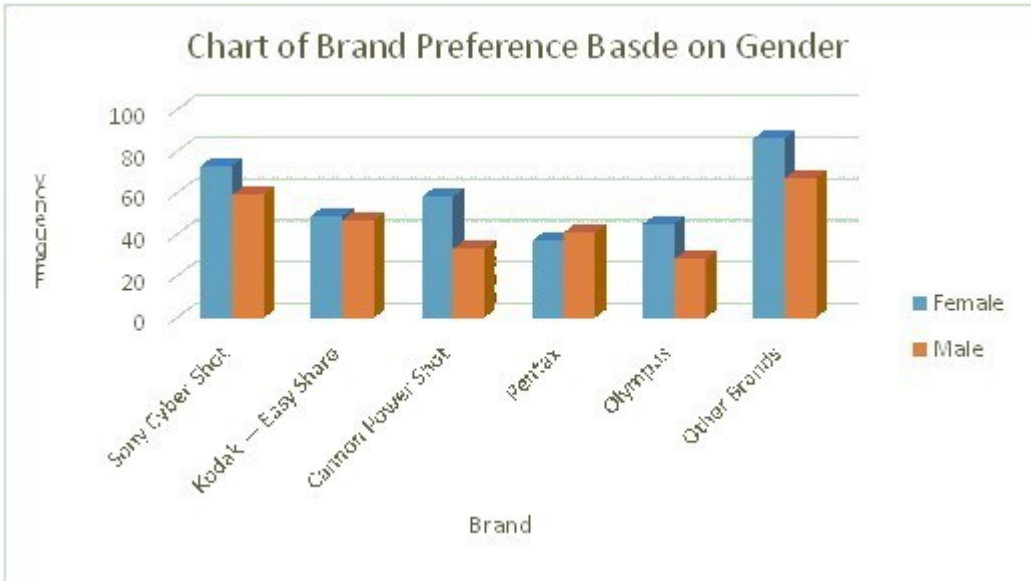
6) What is Mosaic Plot?
Answer: A graphical representation of a (usually two-way) contingency table. The plot is divided into rectangles so that the area of each rectangle is proportional to the number of cases in the data set.
Type: ES
Objective: 1

A large national retailer of electronics conducted a survey to determine consumer preferences for various brands of digital cameras. The table summarizes responses by brand and gender.

	Female	Male	Total
Sony Cyber-Shot	73	59	**132**
Kodak – Easy Share	49	47	**96**
Canon Power Shot	58	33	**91**
Pentax	37	41	**78**
Olympus	45	28	**73**
Other Brands	86	67	**153**
Total	**348**	**275**	**623**

7) Write a sentence or two about the conditional relative frequency distribution of the brands among female respondents.
Answer: Among females, 21% prefer Sony, 14.1% prefer Kodak, 16.7% prefer Canon, 10.6% prefer Pentax, and 12.9 % prefer Olympus. The remaining 24.7% of females preferred other brands.
Type: ES
Objective: 3

8) Consider the following side-by-side bar chart for these data:



Does the chart indicate that brand preference is independent of gender? Explain.
Answer: Brand preference does not appear to be independent of gender. Brand preferences seem to differ based on gender.
Type: ES
Objective: 1, 2

2 Quiz B

A full service brokerage firm gathered information on how its clients were investing for retirement. Based on age, clients were categorized according to where the largest percentage of their retirement portfolio was invested. The following table summarized the data.

	Age 50 or Younger	Over Age 50	Total
Mutual Funds	30	34	**64**
Stocks	37	45	**82**
Bonds	19	23	**42**
Total	**86**	**102**	**188**

1) Identify the variables and tell whether each is categorical or quantitative.
Answer: Type of investment and age; type of investment is categorical; age is quantitative.
Type: ES
Objective: 1, 2

2) Find each of the following percentages.

a. What percent of the clients are over the age of 50 and invest in mutual funds?
b. What percent of clients over age 50 invest in mutual funds?
c. What percent of the mutual fund investors are over age 50?

Answer:
a. 18.1% (34/188)
b. 33.3% (34/102)
c. 3.1% (34/64)
Type: ES
Objective: 2

3) What is the marginal distribution of age?
Answer: 86 clients are age 50 or younger and 102 are over age 50.
Type: ES
Objective: 3, 4

Data were collected for a sample of 12 pharmacists to determine if years of experience and salary are related. Below are the regression analysis results. The dependent variable is *Salary* in thousands of dollars.

Regression Analysis: Salary versus Years Experience

The regression equation is
Salary = 37.2 + 1.49 Years Experience

Predictor	**Coef**	**SE Coef**	**T**	**P**
Constant	**37.164**	**3.381**		
Years Experience	**1.4882**	**0.2149**		

S = 5.58485 R-Sq = 82.8%

12) The standard error of the slope for this estimated regression equation is
A) 3.381.
B) 0.2149.
C) 5.58485.
D) 82.8.
E) 1.4882.
Answer: B
Type: MC
Objective: 4.3, 4.4

13) The calculated t-statistic to test whether the regression slope is significant is
A) 10.99.
B) 47.97.
C) 31.2.
D) 6.93.
E) 5.58485.
Answer: D
Type: MC
Objective: 4.3, 4.4

14) The P-value associated with this statistic is < 0.001. At the 0.05 level of significance

I. we reject the null hypothesis.
II. we do not reject the null hypothesis.
III. we conclude that years of experience is significant in explaining pharmacists' salary.

A) I only
B) II only
C) III only
D) I and III
E) II and III
Answer: D
Type: MC
Objective: 4.3, 4.4

15) How much of the variability in pharmacists' salary is accounted for by years of experience?
A) 82.8%
B) 47.97%
C) 5.58485 thousands dollars
D) 10.99%
E) 98.9%
Answer: A
Type: MC
Objective: 4.3, 4.4

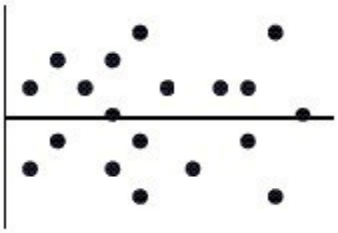
16) Using the estimated regression to predict salary for 10 years of experience gives the following results.

Fit	SE Fit	95% CI	95% PI
52.05	1.81	(48.01, 56.08)	(38.96, 65.13)

Which of the following is true?
A) 95% of pharmacists with 10 years of experience earn between $38 960 and $65 130.
B) 95% of pharmacists with 10 years of experience earn between $48 010 and $56 080.
C) We are 95% confident that a particular pharmacist who has 10 years of experience earns between $38 960 and $65 130.
D) We are 95% confident that a particular pharmacist who has 10 years of experience earns between $48 010 and $56 080.
E) 95% of pharmacists with 10 years experience on average earn between $48 010 and $56 080.
Answer: C
Type: MC
Objective: 4.3, 4.4

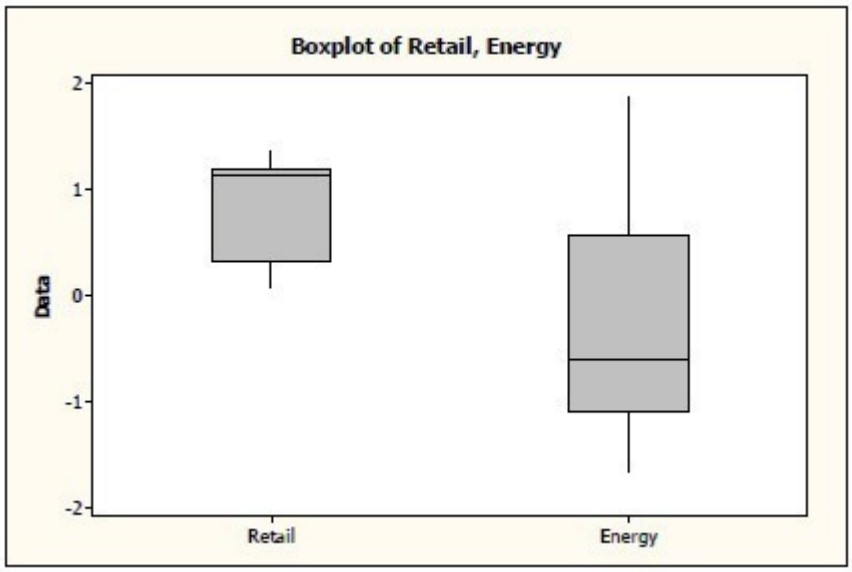
17) The model predicted $\sqrt{\text{distance}} = 3.30 + 0.235 \times \text{speed}$ can be used to predict the stopping distance (in feet) for a car travelling at a specific speed (in mph). According to this model, about how much distance will a car going 65 mph need to stop?
A) 345.0 feet
B) 18.6 feet
C) 27.0 feet
D) 4.3 feet
E) 729.0 feet
Answer: A
Type: MC
Objective: 4.3, 4.4

18) A least squares estimated regression line has been fitted to a set of data and the resulting residual plot is shown. Which is true?



A) The linear model is appropriate.
B) The linear model is poor because some residuals are large.
C) The linear model is poor because the correlation is near 0.
D) A curved model would be better.
E) A transformation of the data is required.
Answer: A
Type: MC
Objective: 4.3, 4.4

Boxplots of earnings per share (EPS) data for a sample of retail company stocks and a sample of energy company stocks are shown below.



19) Which of the following statements is correct?
A) The median EPS is higher for energy stocks compared to retail stocks.
B) The median EPS is higher for retail stocks compared to energy stocks.
C) The IQR for the EPS data is larger for retail stocks than for energy stocks.
D) The EPS data are more variable for retail stocks than for energy stocks.
E) The mean is higher for energy stocks compared to retail stocks.
Answer: B
Type: MC
Objective: 3.3, 3.7

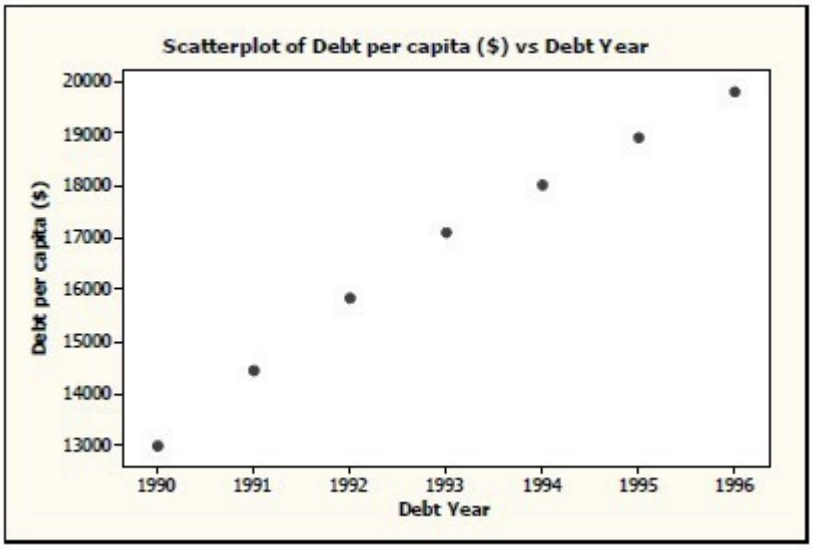
20) Which of the following statement is true about the distributions of EPS for retail and energy stocks?
A) The distribution of EPS for retail stocks is skewed to the right.
B) The distribution of EPS for energy stocks is symmetric.
C) Both distributions of EPS are symmetric.
D) The distribution of EPS for retail stocks is skewed to the left.
E) The distribution of EPS for energy stocks is skewed to the left.
Answer: D
Type: MC
Objective: 3.3, 3.7

21) For families who live in apartments the correlation between the family's income and the amount of rent they pay is r = 0.60. Which is true?

I. In general, families with higher incomes pay more in rent.
II. On average, families spend 60% of their income on rent.
III. The regression line passes through 60% of the (income$, rent$) data points.

A) I only
B) II only
C) I and II
D) I and III
E) I, II, and III
Answer: A
Type: MC
Objective: 4.2

22) According to *The World Almanac and Book of Facts 2004*, the debt per capita for the years 1990-2001 gives the following scatterplot:



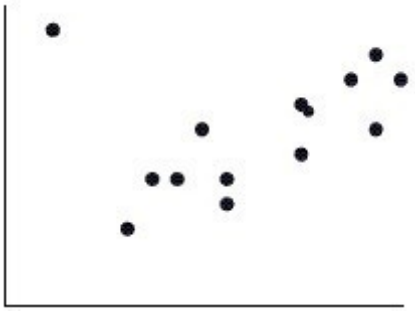
The equation of the regression line is:
predicted (Debt per capita) = -2 231 226 + 1128 × (Debt Year) with R^2 = 98.8%.

Which of the following statements is true?

I. About 98.8% of the variability in debt per capita is explained by the model.
II. On average, debt per capita increases $1128 per year, on average.
III. The response variable is "year."

A) I only
B) II only
C) III only
D) I and II
E) I, II, and III
Answer: D
Type: MC
Objective: 3.7, 4.1, 4.3

23) If the point in the upper left corner of the scatterplot shown below is removed, what will happen to the correlation (r) and the slope of the line of best fit (b)?



A) They will not change.
B) Both will increase.
C) Both will decrease.
D) r will increase and b will decrease.
E) r will decrease and b will increase.
Answer: B
Type: MC
Objective: 3.7, 4.2

24) Which is true?

I. Random scatter in the residuals indicates a model with high predictive power.
II. If two variables are very strongly associated, then the correlation between them will be near +1.0 or -1.0.
III. The higher the correlation between two variables the more likely the association is based in cause and effect.

A) I only
B) II only
C) I and II
D) I, II, and III
E) None
Answer: E
Type: MC
Objective: 4.3, 4.4

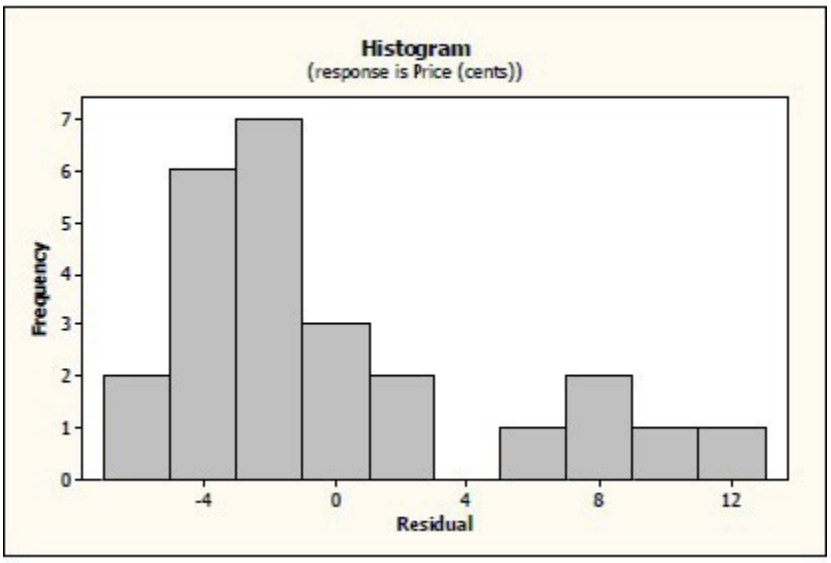
25) The correlation between price per pound (X) and number of pounds of coffee sold (Y) is -0.927. The standard deviation in prices per pound is $3.63 and the standard deviation in number of pounds sold is 18.33. The estimated slope of the best fitting line relating X and Y is
A) 95.47.
B) 0.859.
C) -4.684.
D) -0.859.
E) -95.47.
Answer: C
Type: MC
Objective: 4.3, 4.4

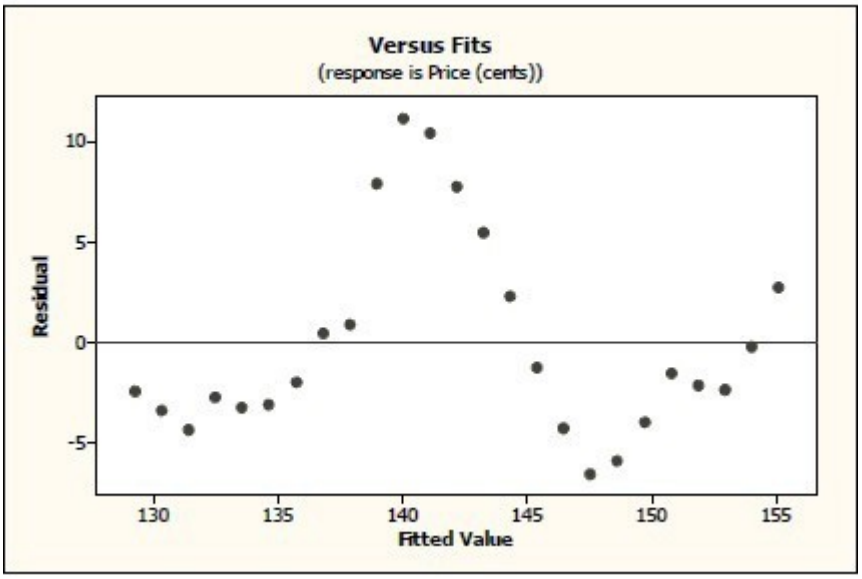
Weekly commodity prices for heating oil (in cents) were obtained and regressed against time. Below is the regression output and residual plots from fitting a linear model.

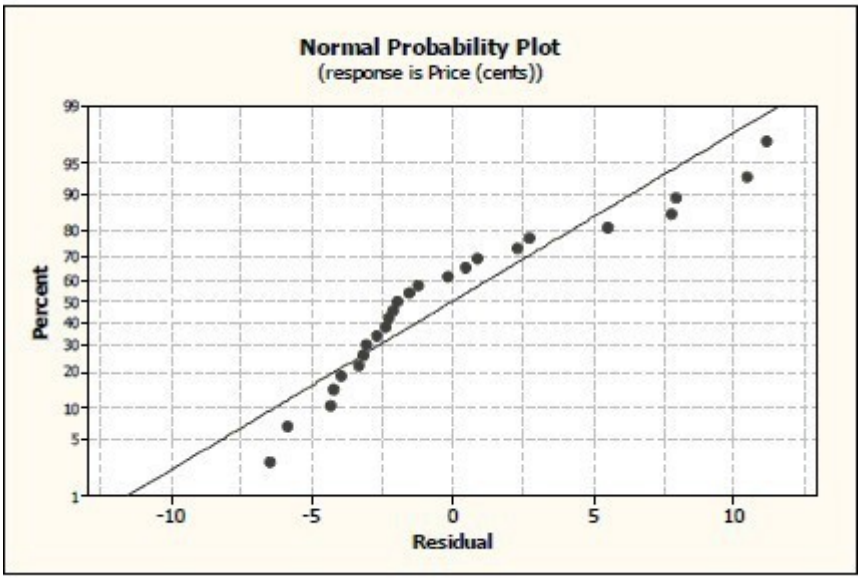
The regression equation is
Price (cents) = 128 + 1.08 Time

Predictor	Coef	SE Coef	T	P
Constant	128.112	2.092	61.25	0.000
Time	1.0782	0.1407	7.66	0.000

S = 5.07299 R-Sq = 71.9%







26) Which of the following statements is true?

I. The t-test for the regression slope indicates that it is significantly different from zero.
II. The model explains 71.9% of the variability in heating oil prices.
III. The linear model is appropriate.

A) I only
B) II only
C) III only
D) I and II
E) I, II, and III
Answer: D
Type: MC
Objective: 4.3, 4.4

27) Which assumption appears to be violated?
A) Linearity
B) Normality
C) Equal Variance
D) Linearity and Normality
E) Independence
Answer: D
Type: MC
Objective: 4.3, 4.4

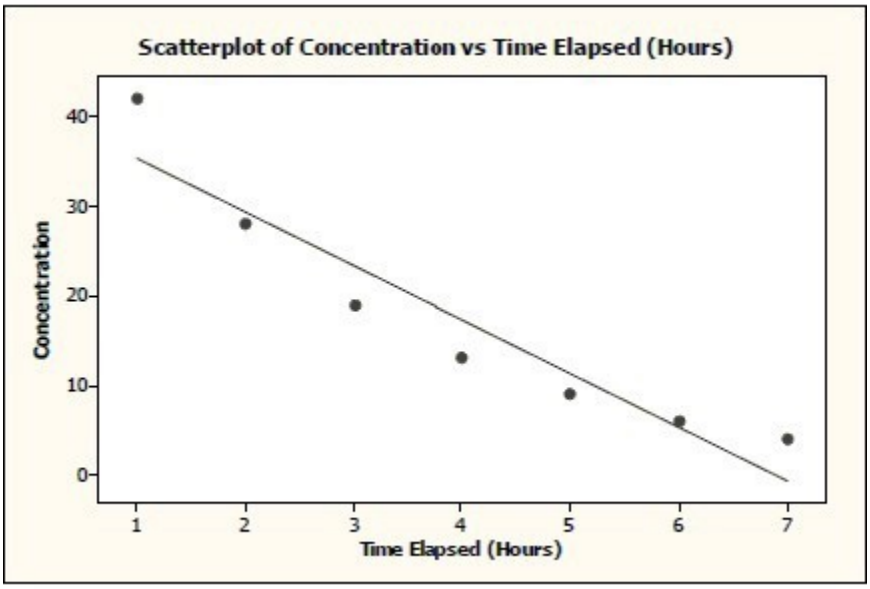
A newly developed drug is tested to determine absorption levels in a patient's bloodstream. A patient is injected with the drug and the concentration (units/cc) in the patient's blood is measured every hour for seven hours. Below is the output from fitting a linear regression model.

Regression Analysis: Concentration versus Time Elapsed

The regression equation is
Concentration = 41.3 - 6.00 Time Elapsed

Predictor	Coef	SE Coef	T	P
Constant	41.286	3.990	10.35	0.000
Time Elapsed	-6.0000	0.8921	-6.73	0.001

S = 4.72077 R-Sq = 90.0%



28) Which of the following is true?

I. The linear model is appropriate given that it explains 90% of the variability in blood concentration levels of the drug.
II. This model will underestimate the concentration level after 10 hours has elapsed because the linear model is not appropriate.
III. This model will overestimate the concentration level after 10 hours has elapsed because the linear model is not appropriate.

A) I only
B) II only
C) III only
D) I and II
E) I and III
Answer: B
Type: MC
Objective: 4.3, 4.4

29) The correlation between concentration and time elapsed is
A) 0.949.
B) 0.900.
C) 0.810.
D) -0.949.
E) -0.810.
Answer: D
Type: MC
Objective: 4.2