

***Principles of Psychology 1st edition Breedlove Test
Bank***

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1. Which of the following investigation types does *not* represent the descriptive method of scientific inquiry?
 - A) Surveying
 - B) Case study
 - C) Naturalistic observation
 - D) Laboratory experimentation

2. Which of the following correlation coefficients represents the strongest correlation between two variables?
 - A) -0.85
 - B) -0.10
 - C) $+0.25$
 - D) $+0.70$

3. In which of the following situations would a correlation coefficient be highly misleading?
 - A) The variables do not covary.
 - B) The causal connection between the variables is unknown.
 - C) The variables are associated in a nonlinear pattern.
 - D) There is a perfect, but negative, correlation.

4. Cases of spurious correlations are typically explained in terms of _____ variables that are _____ two correlated variables.
 - A) independent; distinct from
 - B) independent; unaffected by
 - C) confounding; independent of
 - D) confounding; affecting

5. The principle of Occam's razor compares _____ in terms of the _____.
 - A) hypotheses; assumptions they make
 - B) hypotheses; observations they predict
 - C) experiments; potential to replicate results
 - D) experiments; handling of dependent variables

6. A researcher is designing an experiment intended to study the effects of the physical environment on reading comprehension. Which of the following factors would be best characterized as an independent variable in such an experiment?
- A) The number of subjects participating in the experiment
 - B) The manner in which the researcher records observable data
 - C) The level of lighting in settings where test subjects are asked to read
 - D) The performance of subjects on reading tests administered by the researcher
7. A group of researchers is most likely to conduct a meta-analysis if an experiment has
- A) been widely replicated only under very similar conditions.
 - B) significant results that could not be replicated by other parties.
 - C) results that could be replicated only when certain conditions changed.
 - D) had widely replicated results and has undergone extensive variation.
8. A _____ is a set of consistent _____ that have undergone successful testing.
- A) hypothesis; strong inferences
 - B) theory; hypotheses
 - C) strong inference; theories
 - D) strong inference; hypotheses
9. A good scientific hypothesis is
- A) capable of being proven.
 - B) tied to observable phenomena.
 - C) based on a relatively new theory.
 - D) logically impossible to refute.
10. A psychologist working at a university is interested in designing an experiment to explore the impact of stress on women's sleep cycles. She will use university students as subjects. In this situation, the students at her university represent a _____, which is part of the _____.
- A) representative sample; theoretical population
 - B) study population; theoretical population
 - C) random sample; study population
 - D) theoretical population; study population
11. Which of the following is a measure of central tendency?
- A) Range
 - B) Standard deviation
 - C) Variance
 - D) Median

12. All of the following statements are true of large data sets with negatively skewed distributions *except*:
- A) The mean is less than the mode.
 - B) The mean is less than the median.
 - C) The mode is less than the median.
 - D) The median is less than the mode.
13. A data set has a median value of 66, a mean value of 68, and a standard deviation of 18. Which value in the data set is most reasonably understood as an outlier?
- A) 24
 - B) 42
 - C) 68
 - D) 86
14. A psychological test designed to measure creativity is considered a reliable tool based on whether
- A) the same subjects would score consistently over time.
 - B) it accounts for different concepts of creativity.
 - C) subjects who attain lower scores are actually less creative.
 - D) testing conditions affect the performance of subjects.
15. In a typical controlled experiment designed to test the effects of a new drug, _____ will be administered to the _____ group.
- A) only the placebo; control
 - B) only the placebo; experimental
 - C) the drug and the placebo; control
 - D) the drug and the placebo; experimental
16. When administered to subjects in an experiment, a placebo is a treatment that
- A) is being subjected to rigorous testing.
 - B) has unpredictable medical effects.
 - C) is believed to be free of medical effects.
 - D) has different effects on different groups.

17. Which of the following factors would most severely reduce the usefulness of a placebo in a controlled experiment?
- A) It is likely that the treatment being tested is actually no more effective than the placebo.
 - B) It is relatively easy for subjects to distinguish the placebo from a potentially effective treatment.
 - C) Some of the test subjects exhibit effects from the placebo similar to those of the treatment being tested.
 - D) The test subjects have not been told what effects the tested treatment would have that the placebo lacks.
18. Which of the following measures is most likely to take place at the public discourse stage of a psychological research program?
- A) Researchers will collect data from random samples of the population in survey polls.
 - B) Institutions will recruit candidates to participate in controlled experiments.
 - C) Psychologists will identify widespread patterns of relevant behavior among research subjects.
 - D) Unaffiliated psychologists will adopt and carry out similar experiments independently.
19. The Tuskegee syphilis study raised serious concerns about ethical research because the researchers
- A) distorted the data gathered from observation.
 - B) infected test subjects with a dangerous disease.
 - C) withheld information from test subjects about their condition.
 - D) failed to create randomized control groups for comparison.
20. Contemporary standards of informed consent require a psychologist using human subjects in an experiment to disclose the _____ before the experiment commences.
- A) differences between experimental and control groups
 - B) details of any risks the subjects will face
 - C) central hypothesis being tested
 - D) specific objectives of the experiment

Answer Key

1. D
2. A
3. C
4. D
5. A
6. C
7. D
8. B
9. B
10. B
11. D
12. C
13. A
14. A
15. A
16. C
17. B
18. D
19. C
20. B

1. To identify the most popular exhibits at a science museum, visitors were asked every day for six weeks to rate how much they enjoyed each exhibit. The data were analyzed to look for age and sex differences in exhibit preferences. This was an example of
 - A) naturalistic observation.
 - B) survey research.
 - C) case study research.
 - D) experimental research.

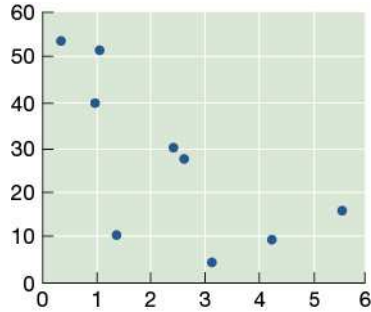
2. Which approach would be most appropriate for testing the hypothesis that taking practice tests improves learning more than studying alone does?
 - A) Experimental research
 - B) Correlational research
 - C) Surveys of representative samples of students
 - D) Case studies of high-achieving students

3. A researcher would be most likely to find a negative correlation between _____ and _____.
 - A) shyness; party attendance
 - B) hopelessness; depression
 - C) conscientiousness; grade point average (GPA)
 - D) occupational success; self-esteem

4. A correlation of -0.80 between meditation and anxiety symptoms would indicate
 - A) meditation and anxiety symptoms are unrelated.
 - B) meditation effectively reduces anxiety symptoms.
 - C) anxious people are more likely to meditate.
 - D) meditation predicts lower levels of anxiety.

5. Which of these correlations has the *least* predictive value?
 - A) -0.75
 - B) -0.35
 - C) $+0.10$
 - D) $+0.50$

6. Refer to the figure below.



This scatterplot reveals a _____ correlation.

- A) positive
- B) negative
- C) spurious
- D) non-linear

7. “Green is the prettiest color” is a _____ hypothesis because it is _____.

- A) poor; not true
- B) poor; not testable
- C) good; testable
- D) good; true

8. You feel sick after eating leftovers you found in the back of the refrigerator. Occam's razor would favor the hypothesis that you have

- A) food poisoning.
- B) been poisoned by your roommate.
- C) stomach cancer.
- D) contracted swine flu.

9. An unethical experimenter wants to test the relationship between discomfort and aggression. On a hot day, she turns off the air conditioning in one dorm and leaves it on in another, then has her research assistants count occurrences of verbal aggression in common areas of the buildings. Students in the air-conditioned dorm would be the _____, and students in the overheated dorm would be the _____.

- A) representative sample; random sample
- B) study population; sampling frame
- C) control group; experimental group
- D) independent sample; dependent sample

10. What is the primary difference between a hypothesis and a theory?
- A) A hypothesis is based on a hunch, and a theory is based on data.
 - B) A hypothesis is an untested theory.
 - C) Hypotheses are used to generate theories.
 - D) A theory is a collection of data-based hypotheses.
11. A research team was investigating the impact of stereotypes on performance. In one group, women read a magazine article about why the structure of men's brains makes them better at math. In the second group, women read a magazine article saying there are no biological differences in the mathematical abilities of men and women. All women in the study then took a challenging math test. Researchers scored the number of items women answered correctly. In this study, which of the following was the dependent variable?
- A) How difficult women found the test
 - B) Women's beliefs about their math abilities
 - C) Which article the women read
 - D) Women's scores on the math test
12. In experimental research, which of the following variables is controlled by the researcher?
- A) Confounding
 - B) Experimental
 - C) Dependent
 - D) Independent
13. A professor wanted to learn more about the body image concerns of young teenage girls. She randomly selected 200 girls from local middle schools to complete her questionnaire. These girls were
- A) a random population.
 - B) an experimental group.
 - C) a representative sample.
 - D) the sampling frame.
14. A news organization wanted to predict who would win the next U.S. presidential election. They sent an opinion poll to every fiftieth person on a list of students enrolled at a nearby college. Which of the following is the study population?
- A) Americans in general
 - B) College students in general
 - C) Students at this particular college
 - D) Students who return the questionnaire

15. Students _____ would be the most representative sample for a study of competitiveness in high school.
- A) competing in sports
 - B) in a required health class
 - C) in advanced math classes
 - D) who agree to do the study during lunch
16. You take a job selling magazine subscriptions from home because the recruitment video says the average earnings per employee are \$90,000 a year. You work 60 hours a week for a year and earn \$30,000. An Internet search reveals that hundreds of people have had the same experience with this and other work-at-home schemes. How can companies legitimately claim that the average salary is \$90,000 if most employees make less than \$30,000?
- A) The median salary is higher than the mean salary.
 - B) The mean salary reflects the presence of outliers.
 - C) The modal salary is higher than the mean salary.
 - D) The average salary does not consider the highest and lowest salaries.
17. The median is a better measure of central tendency than the mean for which of the following distributions?
- A) 1, 2, 3, 5, 6
 - B) 10, 12, 13, 14, 106
 - C) 275, 282, 293, 300, 311
 - D) 1024, 1024, 1024, 1048, 1059
18. On an empathy questionnaire, Group 1 had a mean score of 117 with a standard deviation of 14. Group 2 had a mean score of 96 with a standard deviation of 23. Therefore, _____ scored higher on average and their scores were _____ spread out than scores from _____.
- A) Group 1; more; Group 2
 - B) Group 1; less; Group 2
 - C) Group 2; more; Group 1
 - D) Group 2; less; Group 1
19. Which is the correct order of measures of central tendency, from lowest to highest, for a positively skewed distribution?
- A) Mean, median, mode
 - B) Median, mode, mean
 - C) Mode, median, mean
 - D) Mean, mode, median

20. Whether depression levels are truly lower in a treatment group than in a control group is assessed by determining the _____ of the difference in scores between groups.
- A) variance
 - B) validity
 - C) statistical inference
 - D) statistical significance
21. In an analysis testing differences between an experimental and a control group on the dependent variable, a p -value of 0.07 means there is a
- A) statistically significant difference between the groups.
 - B) statistically significant validity problem with the measure of the dependent variable.
 - C) 7 percent chance that differences between the two samples are due to chance alone.
 - D) 93 percent chance that differences between the two samples are due to chance alone.
22. A self-report measure of the personality trait of agreeableness produces very similar scores each time the same person completes it. It is also strongly correlated with whether family members describe a person as friendly and cooperative. This measure appears to be
- A) reliable and valid.
 - B) valid but not reliable.
 - C) reliable but not valid.
 - D) neither reliable nor valid.
23. A depressed teenager treated with medication begins feeling better immediately, even though the medication typically takes weeks to work. This is an example of a _____ effect.
- A) demand
 - B) double-blind
 - C) placebo
 - D) confound
24. A researcher testing a new medication for attention deficit disorder randomly assigns half of the participants to get the actual medication and half to get a sugar pill. Neither the researcher nor the participants know who is getting what. This study design will
- A) increase measurement reliability.
 - B) increase explicit bias.
 - C) reduce study validity.
 - D) reduce unconscious bias.

25. The key purpose of an Institutional Review Board (IRB) is to
- A) determine whether a proposed study is ethical.
 - B) identify the most appropriate statistical analyses for a study.
 - C) punish unethical researchers.
 - D) evaluate whether a researcher's conclusions match the data.

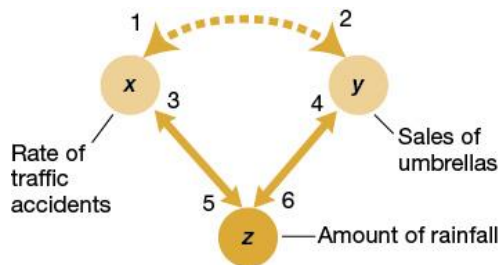
Answer Key

1. B
2. A
3. A
4. D
5. C
6. B
7. B
8. A
9. C
10. D
11. D
12. D
13. C
14. C
15. B
16. B
17. B
18. B
19. C
20. D
21. C
22. A
23. C
24. D
25. A

1. Which of the following best represents the case study method?
 - A) A report that discusses the different responses of two groups to variations in medical treatment
 - B) A book that documents the development of a person who was diagnosed with a life-threatening illness at a young age
 - C) A documentary film that presents footage of members of an isolated tribe going about their daily lives
 - D) An article that analyzes the results of responses to questionnaires asking about a number of controversial social issues

2. Which correlation coefficient represents the weakest correlation between two variables?
 - A) -0.60
 - B) -0.42
 - C) $+0.31$
 - D) $+0.40$

Use the following to answer questions 3-4:



3. For the figure above, which statement concerning the relationship between the rate of traffic accidents and umbrella sales is correct?
 - A) The letter x represents a confounding variable.
 - B) The letter z represents a confounding variable.
 - C) The letters x and y represent confounding variables.
 - D) The letters x , y , and z represent confounding variables.

4. Which numbered arrowheads in the figure represent instances of spurious causation?
 - A) 1 and 2
 - B) 1, 2, 3, and 4
 - C) 2, 4, and 6
 - D) 3, 4, 5, and 6

5. The principle of Occam's razor is used to compare scientific hypotheses primarily on the basis of
- A) clarity.
 - B) usefulness.
 - C) testability.
 - D) simplicity.
6. A researcher is designing an experiment to look at the effects of food consumption on the quality of social interaction. A dependent variable in such an experiment would be the
- A) amount of food that subjects consume.
 - B) specific tasks that subjects are instructed to perform.
 - C) ability of subjects to maintain conversations with others.
 - D) criteria used to determine the quality of communication by subjects.
7. A psychologist has formulated the hypothesis that a lack of positive reinforcement by supervisors in the workplace leads to lower morale among workers, based on the observed correlation between these two phenomena. To support this hypothesis, the four-step process of strong inference would prescribe
- A) an experiment with a control group that receives no reinforcement by an authority figure.
 - B) a wide variety of methods for observing and measuring both reinforcement and morale.
 - C) an experiment that will test whether low worker morale leads to less frequent reinforcement.
 - D) methods for varying the level of exposure to positive reinforcement by test subjects.
8. Which of the following conditions is necessary for a set of hypotheses to earn recognition as a theory?
- A) Identification of highly specific phenomena
 - B) Refutation of all alternatives
 - C) Successful testing
 - D) Widespread replication of experiments
9. A meta-analysis most typically focuses on a multitude of
- A) theories.
 - B) hypotheses.
 - C) phenomena.
 - D) studies.

10. In order to collect opinion data on key issues in one small city, a research company is planning to send a survey-taker to every hundredth home listed in an alphabetical city directory. The survey-taker will interview all adults living at each selected household. In this situation, the adults interviewed are best characterized as a
- A) random and representative sample.
 - B) representative sample but not a random sample.
 - C) study population.
 - D) theoretical population.
11. Which of the following is *not* a measure of central tendency?
- A) Mean
 - B) Mode
 - C) Range
 - D) Median
12. Which of the following numbers represents a statistically significant p -value?
- A) -0.900
 - B) 0.002
 - C) 0.750
 - D) 1.800
13. A psychologist administered a test that was designed to measure intelligence. Individuals taking the test on multiple occasions were found to achieve similar scores over time. Another psychologist used the same test to evaluate subjects' memory capacity, and these results were strongly correlated with those of other memory tests. As an instrument designed to measure intelligence, the test has _____ validity and _____ reliability.
- A) low; low
 - B) high; high
 - C) low; high
 - D) high; low
14. A given data set has a mean that is significantly greater than its median because the data set has
- A) several outliers.
 - B) a low variance.
 - C) a mode of lesser value.
 - D) a low standard deviation.

15. A psychologist at a university has designed an experiment in which subjects will interact one-on-one with Thomas. Thomas will identify himself as a fellow subject but he is actually a member of the psychologist's research team. The psychologist has told the university's Institutional Review Board (IRB) that the experiment cannot be run successfully without this deception. The IRB is likely to decide that the experiment may proceed only if
- A) it is redesigned so that Thomas identifies his actual role at the outset.
 - B) Thomas's role is revealed immediately after subjects complete their participation.
 - C) the individual administering the study informs the subjects that they will be deceived in some way.
 - D) it is clear that the subjects would not tell Thomas anything they would not tell a researcher.

Use the following to answer questions 16-20:

Control group scores								
32	34	38	38	39	41	42	44	45

Experimental group scores								
38	40	41	44	47	48	50	55	56

16. The table shows the test scores of subjects in a controlled experiment, where a treatment undergoing testing was expected to boost the performance of subjects. What is the mode test score in the study?
- A) 38
 - B) 39
 - C) 43
 - D) 47
17. The data support the statement that the _____ group has a greater mean and a _____ standard deviation.
- A) control; greater
 - B) experimental; greater
 - C) control; lower
 - D) experimental; lower

18. The psychologist running this experiment could best uphold standards for double-blind assessment by taking which of the following measures?
- A) Having each of the test subjects take the test in complete isolation
 - B) Verifying that the placebo will have no positive effects on the subjects
 - C) Ensuring that subjects who take the test have no prior knowledge of its subject matter
 - D) Keeping the researcher who administers treatments from knowing which ones are placebos
19. Which of the following conditions would best support the conclusion that the results of the study are statistically significant?
- A) Analyses show that $r = +0.5$, meaning that the differences in the group means are unlikely to be due to chance.
 - B) The members of the experimental group and the control group took the test under virtually identical conditions.
 - C) There is a very high probability that a subject who took the test again under the same conditions would get roughly the same score.
 - D) There is only a very low probability that the random assignment of subjects resulted in control and experimental groups with differences in potential performance.
20. Which of the following statements, if true, would most seriously weaken the conclusion that the treatment is effective?
- A) Statistical analyses reveal a p -value of only 0.01.
 - B) There is reason to believe that the placebo contains a substance that might tend to weaken performance.
 - C) The researcher who scored the tests was unaware of which tests were completed by control group members.
 - D) Subjects in the control group were told they were receiving an effective form of treatment.

Answer Key

1. B
2. C
3. B
4. A
5. D
6. C
7. C
8. C
9. D
10. A
11. C
12. B
13. C
14. A
15. B
16. A
17. B
18. D
19. D
20. B

1. Research that involves intentional manipulation of variables is called _____ research.
 - A) correlational
 - B) case study
 - C) descriptive
 - D) experimental

2. A research team wants to know if sugar consumption is related to hyperactivity. Researchers give fifty children cupcakes made with real sugar and another fifty children cupcakes made with zero-calorie sugar substitutes. They then observe each child individually to assess his or her level of activity after eating the cupcakes. This is an example of
 - A) a case study.
 - B) naturalistic observation.
 - C) experimental research.
 - D) correlational research.

3. In case study research,
 - A) researchers interview a representative sample of people about a topic of interest.
 - B) one or more individuals are studied in great detail.
 - C) people are carefully observed in real-world situations.
 - D) subjects are polled about their beliefs and opinions.

4. To better understand aggressive behavior toward strangers, a psychologist gathers all available information about a man who threatened random people in a mall with an automatic weapon. This is an example of
 - A) correlational research.
 - B) experimental research.
 - C) naturalistic observation.
 - D) case study research.

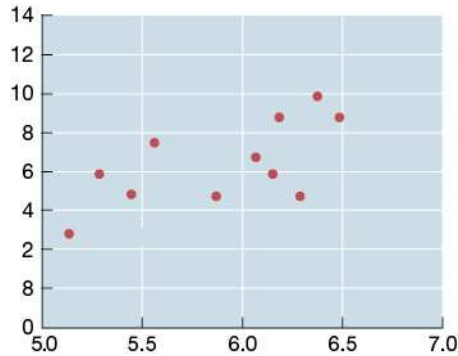
5. A manager at a science museum wants to identify the most popular exhibits, so once every hour for six weeks she has volunteers count the number of people standing in front of each exhibit. This is an example of
 - A) naturalistic observation.
 - B) correlational research.
 - C) case study research.
 - D) experimental research.

6. Which of the following research methods would be most appropriate for exploring whether childhood emotional abuse predicts higher levels of adult depression?
- A) Naturalistic observation
 - B) Experimental research
 - C) Correlational research
 - D) Case studies
7. Which of the following research methods would be most appropriate for investigating the relationship between political orientation and belief in climate change?
- A) Survey research
 - B) Case study research
 - C) Naturalistic observation
 - D) Experimental research
8. A researcher hoping to identify autism's early warning signs collects home videos of autistic teens. She uses these videos of their formative years to identify atypical movements as they learned to crawl and walk. This is an example of
- A) a case study.
 - B) survey research.
 - C) naturalistic observation.
 - D) an experiment.
9. Compared to experimental research, survey research is limited because it
- A) relies more on the honesty and accurate memories of participants.
 - B) is more expensive and time-consuming.
 - C) tends to produce less-representative samples.
 - D) generates more non-linear data.
10. If heavy snowfall in Alaska has a correlation of -0.78 with the consumption of ice cream and a correlation of $+0.78$ with the sale of boots, you can predict that for a snowy January in Alaska, the store will
- A) sell more boots, but ice cream sales will be unchanged.
 - B) sell more boots and ice cream sales will be lower.
 - C) sell slightly more ice cream and significantly more boots.
 - D) see equal increases in sales for both ice cream and boots.

11. Which of the following is true about the strength of a correlation?
- A) Positive correlations are stronger than negative correlations.
 - B) Negative correlations are stronger than positive correlations.
 - C) The closer a correlation is to 1.00, the weaker the relationship.
 - D) The closer a correlation is to 0.00, the weaker the relationship.
12. The extent to which changes in one factor are accompanied by changes in another is called
- A) positive skew.
 - B) negative skew.
 - C) a correlation.
 - D) a confound.
13. Correlations are most useful for
- A) predicting behavior.
 - B) discovering the cause of behavior.
 - C) explaining outcomes.
 - D) testing treatments.
14. A researcher would be most likely to find a positive correlation between
- A) optimism and depression.
 - B) ocean temperature and auto sales.
 - C) illness and school attendance.
 - D) height and weight.
15. A correlation of +0.40 between levels of depression in teens and their parents would indicate that
- A) teen and parental depression are mostly unrelated.
 - B) teen depression causes parental depression.
 - C) parental depression causes teen depression.
 - D) depressed teens tend to have depressed parents.
16. Which of the following correlations has the strongest predictive value?
- A) +0.50
 - B) +0.30
 - C) 0.00
 - D) -0.75

17. As the number of pirates in the world has decreased, the mean global temperature has increased. This is an example of a
- A) non-linear relationship.
 - B) spurious correlation.
 - C) strong inference.
 - D) meta-analysis.

18. Refer to the figure below.



This scatterplot shows a(n) _____ correlation.

- A) positive
 - B) negative
 - C) inverse
 - D) non-linear
19. A recent study found that married people are less likely to have personality disorders than unmarried people. The news reporter covering the study advised people to get married to improve their personalities. You know this recommendation is not warranted because
- A) correlational research is invalid.
 - B) it is possible that personality disorders keep people from marrying.
 - C) these findings are unlikely to be replicated.
 - D) Occam's razor rules out a relationship between marriage and personality disorders.
20. A hypothesis is
- A) a testable prediction about the relationship between variables.
 - B) a simple explanation for a psychological finding.
 - C) an observed relationship between independent and dependent variables.
 - D) an unprovable assumption about psychological processes.

21. Professor Durkin predicts that because we attribute positive qualities to attractive people, attractive children get away with misbehaving more often than unattractive children do. This is an example of
- A) a theory.
 - B) a hypothesis.
 - C) Occam's razor.
 - D) a spurious correlation.
22. "The death penalty is immoral" is a _____ hypothesis because it _____.
- A) good; has been shown that many people agree
 - B) good; can be proven
 - C) poor; is not true
 - D) poor; is not testable
23. The claim "cigarette smoking does not increase risk for lung cancer" _____ a scientific hypothesis because it is _____.
- A) is not; not testable
 - B) is not; clearly untrue
 - C) is; testable
 - D) is; consistent with theory
24. On a hike, you find branches arranged to form a three-foot-tall pyramid, surrounded by a circle of pebbles. Occam's razor would support the hypothesis that _____ created this pyramid.
- A) Bigfoot
 - B) another hiker
 - C) aliens
 - D) random chance
25. Results from a recent experiment are consistent with a researcher's expectation that exposing people to unfamiliar groups reduces prejudice. This means that the researcher
- A) has proven her theory.
 - B) has proven her hypothesis.
 - C) should retain her hypothesis for now.
 - D) needs to follow up with correlational studies.

26. Strong inference
- A) is controversial among psychological researchers.
 - B) involves designing research with the potential to disprove a hypothesis.
 - C) applies only to correlational research.
 - D) eliminates the need for replication.
27. Research has shown that social exclusion activates the same brain regions as physical pain. A researcher wants to test the hypothesis that over-the-counter pain relievers will also reduce the pain of social exclusion. She gives half of her participants ibuprofen and half a placebo, then has them play a game in which other players ignore them. Participants who take the ibuprofen are the _____ and participants who take the placebo are the _____.
- A) experimental group; control group
 - B) randomly assigned group; blind group
 - C) representative sample; random sample
 - D) independent sample; dependent sample
28. A research team is investigating the impact of stereotypes on performance. In one group, women read an article about why the structure of men's brains makes them better at math. In the second group, women read an article saying there are no biological differences in the mathematical abilities of men and women. Then all women in the study take a challenging math test. Researchers time the test and score the number of items women answered correctly. In this study, which of the following is the independent variable?
- A) Women's scores on the math test
 - B) Women's beliefs about their math abilities
 - C) Which article the women read
 - D) How long it takes women to complete the math test
29. Research has shown that social exclusion activates the same brain regions as physical pain. A researcher wants to test the hypothesis that over-the-counter pain relievers will also reduce the pain of social exclusion. She gives half of her participants ibuprofen and half a placebo, has them play a game in which other players ignore them, and then measures their level of distress. In this study _____ is the independent variable and _____ is the dependent variable.
- A) taking ibuprofen; taking a sugar pill
 - B) being ignored; distress
 - C) distress; taking ibuprofen
 - D) whether people take ibuprofen; distress

30. Experimental research would be more useful than correlational research to test the hypothesis that
- A) intelligent parents invest more time in their children's education.
 - B) same-sex classrooms cause girls to develop more positive attitudes toward math.
 - C) introverted people dislike large social gatherings.
 - D) alcohol consumption predicts weight gain.
31. In a phobia treatment study, the participants spend three hours facing their fears. Post-treatment scores show significant improvement in overall distress levels when handling the feared objects, so the treatment is judged as effective by the researcher. To improve the study's design, the researcher can
- A) increase the length of time for the treatment component.
 - B) repeat the study with a new set of participants for a more representative sample.
 - C) include a control group, which would receive some supportive counseling but not the actual treatment.
 - D) change to a correlational design since it is unethical to have participants experience fear as part of a study.
32. To test the impact of mood on generosity, a researcher has half of his participants watch a depressing movie and half watch a comedy. Then the researcher asks all participants for help moving boxes to another room. In this study, mood is the
- A) independent variable.
 - B) dependent variable.
 - C) confound.
 - D) covariant.
33. In an experiment, the variable manipulated by the researcher is the _____ variable.
- A) dependent
 - B) independent
 - C) experimental
 - D) confounding
34. In an experiment, the variable that is expected to differ across the experimental and control groups is the _____ variable.
- A) dependent
 - B) independent
 - C) experimental
 - D) confounding

35. Scientists use laboratory experiments primarily to
- A) create the most naturalistic conditions possible.
 - B) generate initial information about whether two variables are related.
 - C) replicate case studies.
 - D) test cause-and-effect relationships.
36. Researchers are testing the hypothesis that high levels of carbon dioxide in the blood trigger panic attacks. Half of the participants breathe carbon dioxide-enriched air, and the other half breathe normal air, then measured panic attack symptoms. In this study _____ is the independent variable and _____ is the dependent variable.
- A) carbon dioxide-enriched air; regular air
 - B) regular air; carbon dioxide-enriched air
 - C) type of air; panic attack symptoms
 - D) panic attack symptoms; type of air
37. A meta-analysis is
- A) a combination of results from many related studies.
 - B) an alternative to the strong inference approach.
 - C) the most common analysis in correlational research.
 - D) the most common analysis in experimental research.
38. Scientific investigation of Clever Hans revealed that
- A) Hans's owner was a con artist.
 - B) Occam's razor is far from infallible.
 - C) horses respond to unintended cues from their owners.
 - D) horses are capable of simple arithmetic.
39. The Jennifer-John study examining bias against female applicants for a science job suggests that
- A) women perceive bias, but bias does not actually exist.
 - B) women used to face hiring biases, but they no longer do.
 - C) men are biased against female applicants, but women are not.
 - D) both men and women are biased against female applicants.

40. Your text describes a study in which professors receive e-mails, supposedly from students, asking for mentoring. All details about the e-mails are identical except whether they appear to come from males or females and from whites or nonwhites. This is _____ research, and found _____.
- A) experimental; no evidence of bias
 - B) experimental; bias against women and minorities
 - C) correlational; no evidence of bias
 - D) correlational; bias against women and minorities
41. A study that looked at hiring of male and female musicians who sat behind a screen when auditioning for an orchestra is an example of _____ research and revealed _____.
- A) experimental; no change in hiring rates for women
 - B) experimental; an increase in hiring rates for women
 - C) descriptive; no change in hiring rates for women
 - D) descriptive; an increase in hiring rates for women
42. Treatment-outcome researchers attempt to prevent initial differences between treatment and control groups by using _____.
- A) statistical inference.
 - B) placebo controls.
 - C) randomization.
 - D) double blinding.
43. A college professor testing two different study-skill interventions tosses a coin to decide which type of training each student will get. The professor does this to _____.
- A) make it more likely that participants will be representative of the broader population.
 - B) make statistical analyses easier by guaranteeing the same number of participants in each group.
 - C) make it less likely that there will be pre-existing differences between the groups.
 - D) avoid the confound of participants knowing other people in their group.
44. Random assignment to experimental and control conditions involves being assigned _____.
- A) to your condition based on your position on the normal distribution.
 - B) to your condition by pure chance.
 - C) in a way that guarantees no cognitive differences between groups.
 - D) in a way that guarantees no personality differences between groups.

45. The presence of adoring groupies at a small local club make a rock band confident they will become world famous. They should probably pay more attention to the importance of
- A) reliability.
 - B) frequency distributions.
 - C) effect size.
 - D) representative samples.
46. To learn more about the gaming habits of teenage boys, a professor randomly selected fifty boys from various high schools for a video game study. In this study, “all teenage boys” make up the
- A) population.
 - B) representative sample.
 - C) independent variable.
 - D) control group.
47. As part of a political opinion poll, a researcher sent a questionnaire to every hundredth person on a list of students enrolled at an American college. Which of the following is the sampling frame?
- A) Sending the questionnaires
 - B) Deciding which college to study
 - C) Seeing which questionnaires are returned
 - D) Choosing every hundredth student on the enrollment list
48. A researcher wants to study stress and coping in students transitioning into middle school. Students _____ would be the most representative sample.
- A) taking remedial math
 - B) selected at random from a homeroom course
 - C) receiving detention during their first week
 - D) seeking support from the guidance counselor

49. You accept a job selling high-end knives door-to-door on commission because you were informed that company employees, on average, earn \$60,000 a year. After three months of making less than \$1,000 a month, you learn that most other salespeople are making less than \$20,000 a year. If the company has 20 sales people, two managers, and one president, how can the company's claim still be correct?
- A) The median salary is higher than the mean salary.
 - B) The modal salary is higher than the mean salary.
 - C) The median of all salaries is \$60,000 because the managers and the president earn huge salaries.
 - D) The mean of all salaries is \$60,000 because the managers and president earn huge salaries.

50. Refer to the set of numbers below.

2, 10, 8, 4, 10, 12, 3

In this set of numbers, the median is _____ than the mean and _____ than the mode.

- A) greater; greater
- B) greater; less
- C) less; less
- D) less; greater

51. Refer to the set of numbers below.

2, 8, 3, 4, 8, 10, 0

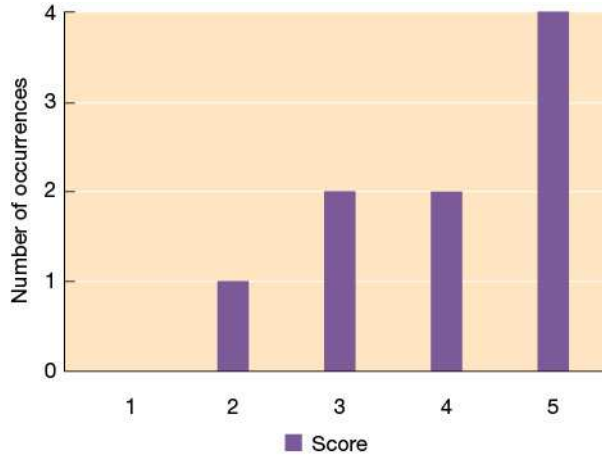
In the set of numbers, the median is _____ than the mean and _____ than the mode.

- A) greater; greater
- B) greater; less
- C) less; less
- D) less; greater

52. The median is better than the mean as a measure of central tendency for which of the following distributions?

- A) 3; 4; 12; 86
- B) 175; 182; 193; 200; 211
- C) 1,024; 1,037; 1,048; 1,059; 1,074
- D) 12; 12; 12; 14; 16

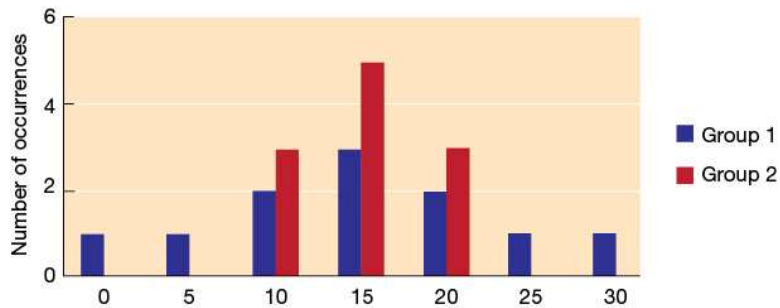
53. Refer to the graph below.



The mean score for this distribution is _____ and the median score is _____.

- A) 5; 4
- B) 4; 5
- C) 4; 4
- D) 3; 5

54. Refer to the graph below.



Scores for Group 1 differ most dramatically from scores for Group 2 in their

- A) mean.
- B) mode.
- C) standard deviation.
- D) median.

55. The first five participants in a study of motivation have scores of 5, 6, 7, 11, and 11 on the motivation questionnaire. Which of the following will change most if the next participant receives a score of 1?
- A) Mean
 - B) Median
 - C) Reliability
 - D) Validity
56. On an intelligence test, Group 1 has a mean score of 96 with a standard deviation of 13. Group 2 has a mean score of 105 with a standard deviation of 8. On this test, _____ scores were higher on average and _____ spread out than _____ scores.
- A) Group 1; more; Group 2
 - B) Group 1; less; Group 2
 - C) Group 2; more; Group 1
 - D) Group 2; less; Group 1
57. Which of the following samples would produce a nearly normal distribution?
- A) The number of men and women in the country
 - B) Incomes in a small company with many low-level employees and two high-paid executives
 - C) Heights of all adult men in America
 - D) Scores on a very easy test
58. When a researcher looks at her personality questionnaire data from 75 participants, she notices limited variance in scores, except for one score falling 4 standard deviations above the mean. This score is
- A) outside the sampling frame.
 - B) evidence of negative skew.
 - C) invalid.
 - D) an outlier.
59. Select the correct order of measures of central tendency, from lowest to highest, for a negatively skewed distribution.
- A) Mean, median, mode
 - B) Median, mode, mean
 - C) Mode, mean, median
 - D) Mean, mode, median

60. A cross-country runner wants to know how consistent her race times have been this season. The most useful measure of her race times would be the
- A) range.
 - B) standard deviation.
 - C) mode.
 - D) difference between the median and the mode.
61. In which of the following distributions would the mean, median, and mode be most alike?
- A) The heights of all adult women in America
 - B) The heights of six women sharing a house
 - C) Heights in a family with a mother, father, two elementary school students, and a preschooler
 - D) Heights in a physical therapy course that includes several members of the basketball team
62. Although a researcher was hoping data from his personality questionnaire would have a normal distribution, the median and mode are both quite a bit higher than the mean. This means his data are
- A) positively skewed.
 - B) negatively skewed.
 - C) invalid.
 - D) unreliable.
63. Which of the following choices requires inferential statistics?
- A) Determining the class average on an exam
 - B) Determining whether the exam scores of one fourth-grade classroom reflect how all fourth-graders would score
 - C) Identifying the most common grade on a test
 - D) Calculating the difference between pre-test and post-test scores after administration of a specialized learning module
64. To decide whether first-year students given study skills training have a better grade point average (GPA) at the end of the year than students without training, researchers will need to determine the _____ of GPA differences between the two groups.
- A) statistical significance
 - B) standard deviation
 - C) variance
 - D) frequency distribution

65. Effect size
- A) is typically identical to statistical significance.
 - B) is typically identical to sample size.
 - C) refers to the magnitude of the difference between groups.
 - D) refers to the variance within the control group.
66. The main purpose of inferential statistics is to
- A) adjust analyses to improve validity.
 - B) account for variability within a population.
 - C) decide whether the standard deviation is skewed by outliers.
 - D) estimate a characteristic of a population based on a sample.
67. A health researcher measured the weight of third-grade girls. In a group of ten girls, weights in pounds were 53, 55, 56, 57, 58, 59, 60, 62, 65, and 66. The range is _____, and the sample _____ appear to have clear outliers.
- A) 53–66; does not
 - B) 53–66; does
 - C) impossible to calculate without inferential statistics; does not
 - D) impossible to calculate without inferential statistics; does
68. Reliability refers to whether your measurement tool _____ and validity to whether it _____.
- A) produces repeatable results; measures what it is supposed to measure
 - B) measures what it is supposed to measure; produces repeatable results
 - C) produces statistically significant results; controls for confounds
 - D) controls for confounds; produces statistically significant results
69. A measure of conscientiousness produces very similar scores each time a person repeats the exercise, but it doesn't predict whether a person is reliable in everyday life. This measure appears to be
- A) reliable and valid.
 - B) valid but not reliable.
 - C) reliable but not valid.
 - D) neither reliable nor valid.

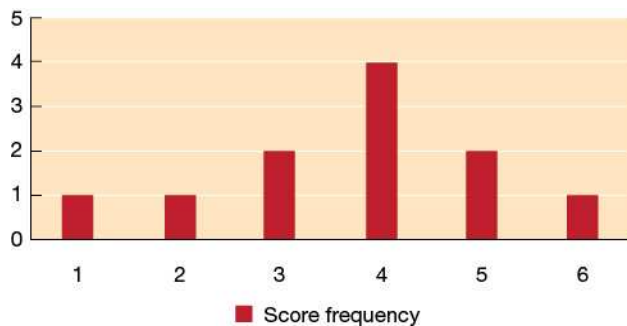
70. In a depression-treatment study, neither the participants nor the researcher know who is taking medication and who is taking a sugar pill. This is an example of a
- A) double-blind trial.
 - B) confound.
 - C) research design with low validity.
 - D) research design with low reliability.
71. In an experiment treating spider phobia, half of the participants get eight hours of cognitive-behavioral treatment. The other half get eight hours of attention from a therapist but no active treatment. Both groups report a statistically significant reduction in their fear of spiders. This is evidence that
- A) cognitive-behavioral therapy has no effect.
 - B) the placebo effect can be significant.
 - C) participants' expectations have no effect.
 - D) control groups are a waste of resources.
72. In a test of a new medication for schizophrenia, doctors allow patients to decide if they want to take the new medication or stick with their current medication. This is problematic because it creates an issue with
- A) frequency distributions.
 - B) effect size.
 - C) informed consent.
 - D) group equivalence.
73. A researcher is testing the hypothesis that an herbal supplement improves concentration. Before taking a concentration test, the first group gets the supplement. Which of the following reflects the highest quality research design for this hypothesis?
- A) A second group gets nothing. A computer system tracks which participants get supplements.
 - B) A second group gets nothing. The person giving the concentration test keeps track of which participants get supplements.
 - C) A second group gets an identical pill but without the supplement. The person giving the concentration test keeps track of who gets which pill.
 - D) A second group gets an identical pill but without the supplement. A computer system tracks who gets which pill.

74. Ethical principles require researchers to
- A) explain the hypothesis they will be testing before participants begin a study.
 - B) provide information about potential risks to participants before they begin a study.
 - C) refrain from conducting research on animals.
 - D) have their research design approved by a group of people similar to the proposed participants.
75. The Tuskegee syphilis study is famous because
- A) it was the first use of randomized, double-blind, placebo-controlled research.
 - B) it demonstrated the psychological effects of syphilis infection.
 - C) researchers failed to inform participants that they had a treatable disease.
 - D) measures were so low in reliability and validity that the data had no value.
76. Deception in psychological research
- A) has never been considered ethical.
 - B) has not been allowed since the Tuskegee study.
 - C) is not possible because it interferes with the legal requirement of informed consent.
 - D) is occasionally allowed but must be followed by a thorough debriefing.
77. The Institutional Animal Care and Use Committee is responsible for all of the following *except*
- A) evaluating the rationale for a proposed study.
 - B) ensuring researchers have minimized animal stress and pain.
 - C) inspecting animal care facilities.
 - D) collecting blood and tissue samples from research animals.
78. In taste tests, people prefer Coke to Pepsi when they drink labeled samples but prefer Pepsi to Coke when they drink unlabeled samples. This is an example of
- A) explicit bias.
 - B) unconscious bias.
 - C) the placebo effect.
 - D) poor measurement validity.
79. Although very few people would admit to a belief that men make better hires than women, several experiments show that men are more likely to be hired than women with identical résumés. This is an example of
- A) explicit bias.
 - B) unconscious bias.
 - C) poor validity.
 - D) negative skew.

80. A meta-analysis of published and unpublished tests of SSRI medications revealed that
- A) SSRIs are effective for all levels of depression.
 - B) published and unpublished trials have similar findings.
 - C) people in placebo groups became even more severely depressed.
 - D) SSRIs beat placebos only for severe levels of depression.
81. There is some evidence that children and adults who watch violent television shows tend to be more aggressive in their behavior. This does not prove that violent shows increase aggressive behavior because _____ does not prove _____.
82. The best way to demonstrate a cause-and-effect relationship is through _____ research.
83. Happily married men live longer than unmarried men. This means marital satisfaction and life expectancy are _____ correlated for males.
84. A researcher tested the hypothesis that exposure to nature would improve mood. Half of the participants watched a nature documentary and the other half watched a documentary about cities. Then all participants completed a measure of their mood. In this study, _____ was the dependent variable.
85. A researcher had college students complete questionnaires about their personality traits and about how likely they would be to keep a secret. Results showed that people high in conscientiousness are less likely to reveal secrets. In addition to being survey research, this was an example of _____ research design.
86. A research team tested the hypothesis that being under stress would reduce one's friendliness to strangers. In the high-stress condition, participants gave a speech on a difficult topic in front of a group of strangers. In the low-stress condition, participants simply introduced themselves to a group of strangers. The researchers then monitored how often participants made friendly comments to the other people in the room. In this study, _____ was the independent variable.
87. A perfect, negative correlation has a value of _____.

88. What type of research would be most appropriate for determining whether watching cute cat videos on YouTube reduces symptoms of depression?
89. Random assignment is most commonly used in _____ research design.
90. Jeff has volunteered to take place in a pain management study. Neither he nor the researchers know whether he is taking the pain killer or a sugar pill. This experiment is an example of a _____ research design.
91. Participants are randomly assigned to treatment and control groups to reduce the likelihood of _____.

92. Refer to the graph below.



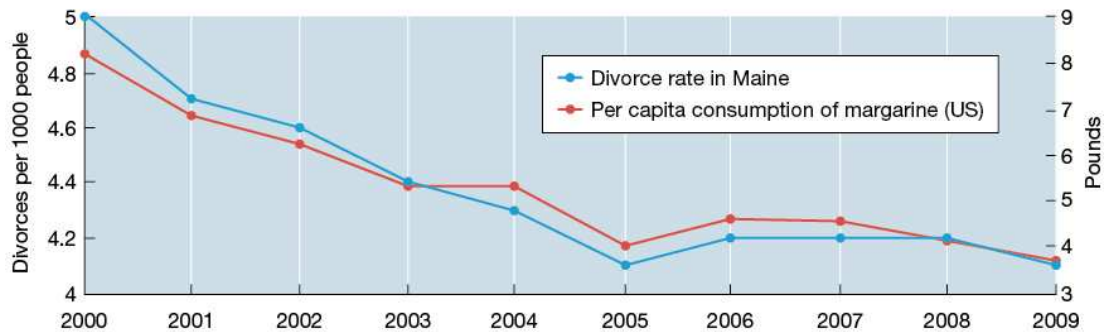
The mode of these data is _____.

93. The measure of central tendency most strongly affected by extreme scores is the _____.
94. A group of medical students looked at heights of a large sample of ten- and eleven-year-old children. For ten-year-olds, the mean height was 54.5 inches and the standard deviation was 0.5 inches. For eleven-year-olds, the mean height was 56.6 inches and the standard deviation was 1.2 inches. Compared with the data for ten-year-olds, data for the eleven-year-olds showed a higher mean and greater _____.
95. A therapist believed so strongly in his treatment approach that he tended to imagine improvements in his clients that had not actually happened. This _____ is why treatment outcome research requires _____.

96. Jim hears that longer hair is correlated with improved verbal skills, so he demands that his son grow his hair long. Why will this fail to improve his son's verbal skills?
97. Describe two limitations of survey research.
98. Your research methods class requires you to design a study. Your partner wants to use the hypothesis "Dogs have souls identical to human souls." What is the problem with this hypothesis?
99. A researcher wants to understand whether long-term romantic relationships reduce risk for heart disease. The researcher uses introductory psychology students as a sample because they are easy to recruit. Why is this a problem?
100. How is it possible for a treatment outcome study to find differences between a treatment and control group that are statistically significant but not clinically meaningful?
101. Professor Ryan wanted to test the hypothesis that childhood physical abuse increases risk for violent behavior in adults. She asked people convicted of a violent crime in the past year about their childhood exposure to physical abuse, as well as their violent behavior as adults. Analyses showed that greater exposure to abuse predicted more adult violence, leading Professor Ryan to conclude that most children exposed to childhood physical abuse will go on to perpetrate violence as adults. What type of research design was used? Was it a reasonable choice for this research question? Explain why or why not. What flaws, if any, do you see in the researcher's study design and conclusion?
102. After a bad day dealing with rude people shutting doors in her face and cutting in line, Professor Green wanted to explore the idea that men are less considerate to strangers than women are. Write a testable hypothesis related to this idea, and outline a strategy for using naturalistic observation to test your hypothesis. Be sure to specify your study population, sampling frame, and key variables.

103. Refer to the data below.

Divorce rate in Maine correlates with per capita consumption of margarine (US)



Your brother found a Website showing a correlation of +0.99 between the divorce rate in the state of Maine and levels of margarine consumption. Decreases in average levels of margarine consumption over the past decade are associated with lower rates of divorce, as shown in the figure above. Because he lives in Maine and wants to stay married, he has decided to stop eating margarine. Explain why his interpretation of the data is likely flawed.

104. Compare the strengths and limitations of the following research study. Researchers tested a new 12-week cognitive therapy for post-traumatic stress disorder (PTSD), which they hope to begin using to treat war veterans. Recruitment flyers were posted at a rape crisis center offering free therapy. Any woman who wanted to participate was included in the study, regardless of her level of PTSD symptoms. Women who chose to participate were given the option to try the new therapy or to take an anti-anxiety medication for 12 weeks. Women who joined the study completed questionnaires about PTSD symptoms before they began the study and again after they completed treatment.
105. Outline a study designed to test a new medication for treating depression. Be sure to specify your study population, identify independent and dependent variables, identify experimental and control groups, and explain how you will know if the medication is effective.

Answer Key

1. D
2. C
3. B
4. D
5. A
6. C
7. A
8. C
9. A
10. B
11. D
12. C
13. A
14. D
15. D
16. D
17. B
18. A
19. B
20. A
21. B
22. D
23. C
24. B
25. C
26. B
27. A
28. C
29. D
30. B
31. C
32. A
33. B
34. A
35. D
36. C
37. A
38. C
39. D
40. B
41. D
42. C
43. C
44. B

- 45. D
- 46. A
- 47. D
- 48. B
- 49. D
- 50. B
- 51. C
- 52. A
- 53. C
- 54. C
- 55. A
- 56. D
- 57. C
- 58. D
- 59. A
- 60. B
- 61. A
- 62. B
- 63. B
- 64. A
- 65. C
- 66. D
- 67. A
- 68. A
- 69. C
- 70. A
- 71. B
- 72. D
- 73. D
- 74. B
- 75. C
- 76. D
- 77. D
- 78. A
- 79. B
- 80. D
- 81. correlation; causation
- 82. experimental
- 83. positively
- 84. mood
- 85. correlational
- 86. level of stress (high- versus low-stress condition; whether the person gave a speech or introduced themselves)
- 87. -1.0
- 88. Experimental
- 89. experimental

90. double-blind, placebo-controlled
91. pre-existing differences between groups
92. 4
93. mean
94. variance
95. unconscious bias; double-blind placebo controls
96. Correlation does not prove causation. The relationship between long hair and verbal skills is a spurious correlation; several other factors are more likely to be responsible.
97. Survey research requires people to have accurate memories and to provide honest reports, which may be unlikely for past events or sensitive topics.
98. It is not a scientific hypothesis. It cannot be tested because it is not possible to collect data on dog or human souls.
99. Introductory psychology students are not a representative sample of people in general, and especially not representative of people in long-term romantic relationships or at risk for heart disease.
100. Statistical significance just means that a difference was unlikely to be due to chance, not that the effect size was large or that the difference between the groups is important.
101. This is a correlational research design. It was a reasonable choice for exploring the relationship between childhood physical abuse and adult violent behavior because it is not possible to do experimental research on this topic. Experiments require randomly assigning people to experimental and control conditions and it wouldn't be ethical to intentionally cause children to experience physical abuse.
One limitation of the study design is relying only on survey data, because people may misremember or be reluctant to reveal sensitive information. Another is using people convicted of violent crime to test a hypothesis about what is true for the general population. One flaw in the professor's conclusion is asserting a causal relationship based on correlational data. The correlation between childhood abuse and adult violence does not *prove* that the childhood abuse causes adult violence. It is possible that a confounding variable, like poverty or parental criminal behavior, explains both exposure to abuse and adult violence. Finally, the professor cannot use a population of violent offenders to draw the conclusion that most children exposed to abuse become violent, as her sample would not allow her to disprove that hypothesis. Even if most of the people convicted of violent crime have a history of abuse, all people with an abuse history do not become aggressive.
102. Answers will vary, as there are many reasonable designs. The key elements are that the hypothesis must be testable, the answer should involve naturalistic observation, the study population should be clearly related to the hypothesis, the sampling frame should generate a reasonably representative sample, and the variable(s) should be appropriate to the hypothesis.
One hypothesis is that men are more likely than women to leave a shopping cart blocking the aisle at a grocery store. The study population would be people shopping at grocery stores. The sampling frame would be the largest local grocery store, with observations taking place 24 hours a day for a full week to avoid confounds based on differences in shopper behavior due to time of day or day of the week. Because it would not be reasonable to watch every aisle at once, the researcher would watch each aisle for one minute before moving to the next, rotating through every aisle in the store in order.

They would record every time a cart blocked the aisle and whether a man or woman left the cart blocking the aisle. They would also record the number of men and women in the aisle during the observation. The key variable would be the percentage of male shoppers and the percentage of female shoppers leaving a cart blocking the aisle. If the percentage of men blocking the aisle were higher than the percentage of women blocking the aisle, the hypothesis would be supported.

103. Although the data show a strong correlation between divorce rates and margarine consumption, correlation alone is not sufficient to show causation. The correlation could arise because eating less margarine protects marriages or because getting divorced triggers margarine consumption. However, because there is not really a logical connection between the two variables, it is most likely that these data reflect a spurious correlation. In other words, rather than margarine consumption and divorce directly affecting each other, the apparent relationship is actually created by some other variable or variables. Health trends have resulted in people eating less margarine, and divorce rates have been dropping around the country as people are delaying marriage. Both divorce and margarine consumption have become less common, but their declines are unrelated. It is just coincidence that the two correlate with each other, and eating less margarine is unlikely to impact marital success.

104. The main strength of the study is that the new cognitive therapy was compared to some other form of treatment. The placebo effect is known to create improvement, but because both conditions offer hope to the participants, if the cognitive therapy is better, the researchers will know it is not just the placebo effect. Another strength is that they measured PTSD symptoms before and after the study, so they would know if the treatment reduced anxiety.

One weakness is the study sample, which does not represent the population to which the researchers want to apply their results. If the researchers want to use a PTSD treatment with war veterans, they should test it with war veterans who have PTSD. Recruiting women from a rape crisis center excludes men entirely and the recruitment criteria did not even require women to have PTSD. It is not clear if the sampling frame even led to a representative sample of women who went to the rape crisis center. Symptom severity was not assessed as part of the study, making it impossible to determine if treatment effects would vary by symptom severity. Another major flaw in the study design was allowing women to pick their treatment condition. The gold standard for treatment outcome research is for people to be randomly assigned to treatment or control groups. The failure to use random assignment increases the likelihood of pre-existing differences between the two groups, making it hard to know if any differences in symptoms at the end of the study are really due to treatment.

105. Answers will vary, but the study should be a randomized, double-blind, placebo controlled trial.

In one possible study, participants will be adults with a diagnosis of depression who are not currently taking any other medications or participating in therapy. The independent variable will be treatment level (medication vs. placebo) and the dependent variable will be score on a depression measure. Participants will be randomly assigned to the experimental condition (getting medication) or the control condition (getting a placebo). The study will be double-blind, meaning that neither the participants nor the research team will know who is getting the real medication and who is getting the placebo.

Participants will complete the depression measure before beginning treatment and again after three months. Change in depression scores from pre-treatment to post-treatment will be compared for the placebo and medication groups. If the medication works as expected, there will be a statistically significant difference between the experimental and control groups, with a larger drop in depression symptoms for the experimental group.