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| **Multiple Choice** |

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| 1. ​A psychologist from the \_\_\_\_\_ research area might study brain organization or the chemical messengers used in the nervous system.   |  |  |  | | --- | --- | --- | |  | a. | ​cognition | |  | b. | ​social psychology | |  | c. | ​psychobiology | |  | d. | ​human development |  |  |  | | --- | --- | | *ANSWER:* | c | | *KEYWORDS:* | AREAS OF PSYCHOLOGICAL RESEARCH—APPLY | |

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| 2. A psychologist from the \_\_\_\_\_ research area might study how humans process, store, and retrieve information.​   |  |  |  | | --- | --- | --- | |  | a. | ​cognition | |  | b. | ​social psychology | |  | c. | ​psychobiology | |  | d. | ​human development |  |  |  | | --- | --- | | *ANSWER:* | a | | *KEYWORDS:* | AREAS OF PSYCHOLOGICAL RESEARCH—APPLY | |

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| 3. A psychologist from the \_\_\_\_\_ research area might conduct research on prenatal development or gerontology.​   |  |  |  | | --- | --- | --- | |  | a. | ​cognition | |  | b. | ​social psychology | |  | c. | ​psychobiology | |  | d. | ​human development |  |  |  | | --- | --- | | *ANSWER:* | d | | *KEYWORDS:* | AREAS OF PSYCHOLOGICAL RESEARCH—APPLY | |

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| 4. Psychologists interested in how being part of a group affects the individual are most likely from the \_\_\_\_\_ research area.​   |  |  |  | | --- | --- | --- | |  | a. | ​cognition | |  | b. | ​social psychology | |  | c. | ​psychobiology | |  | d. | ​human development |  |  |  | | --- | --- | | *ANSWER:* | b | | *KEYWORDS:* | AREAS OF PSYCHOLOGICAL RESEARCH—UNDERSTAND | |

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| 5. ​A psychologist studying whether therapy is really effective in helping people is most likely from the \_\_\_\_\_ research area.   |  |  |  | | --- | --- | --- | |  | a. | ​cognition | |  | b. | ​social psychology | |  | c. | ​psychotherapy | |  | d. | ​human development |  |  |  | | --- | --- | | *ANSWER:* | c | | *KEYWORDS:* | AREAS OF PSYCHOLOGICAL RESEARCH—UNDERSTAND | |

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| 6. A belief that is based on subjective feelings is to knowing via \_\_\_\_\_ as gaining knowledge without being consciously aware of where the knowledge was gained is to knowing via \_\_\_\_\_.​   |  |  |  | | --- | --- | --- | |  | a. | ​authority; superstition | |  | b. | ​superstition; intuition | |  | c. | ​tenacity; intuition | |  | d. | ​intuition; superstition |  |  |  | | --- | --- | | *ANSWER:* | b | | *KEYWORDS:* | SOURCES OF KNOWLEDGE—THINK CRITICALLY | |

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| 7. ​Gaining knowledge from those viewed as authority figures is to knowledge via \_\_\_\_\_ as stubbornly clinging to knowledge gained from repeated ideas is to knowledge via \_\_\_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | ​tenacity; authority | |  | b. | ​rationalism; tenacity | |  | c. | ​authority; tenacity | |  | d. | ​intuition; authority |  |  |  | | --- | --- | | *ANSWER:* | c | | *KEYWORDS:* | SOURCES OF KNOWLEDGE—THINK CRITICALLY | |

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| 8. Gaining knowledge through logical reasoning is to knowledge via \_\_\_\_\_ as gaining knowledge through observation of organisms and events in the real world is to knowledge via \_\_\_\_\_.​   |  |  |  | | --- | --- | --- | |  | a. | ​rationalism; empiricism | |  | b. | ​science; empiricism | |  | c. | ​rationalism; science | |  | d. | ​empiricism; rationalism |  |  |  | | --- | --- | | *ANSWER:* | a | | *KEYWORDS:* | SOURCES OF KNOWLEDGE—THINK CRITICALLY | |

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| 9. Gaining knowledge via science involves using \_\_\_\_\_ and \_\_\_\_\_.​   |  |  |  | | --- | --- | --- | |  | a. | ​empiricism; intuition | |  | b. | ​tenacity; authority | |  | c. | ​intuition; logical reasoning | |  | d. | ​empiricism; rationalism |  |  |  | | --- | --- | | *ANSWER:* | d | | *KEYWORDS:* | SOURCES OF KNOWLEDGE—UNDERSTAND | |

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| 10. Mike pitched a great game on Saturday, and he believes that it is because he wore his lucky socks. He has now decided that he will wear these socks for every game of the season because he believes that they will make him lucky. This belief is based on \_\_\_\_\_.​   |  |  |  | | --- | --- | --- | |  | a. | ​superstition | |  | b. | ​rationalism | |  | c. | ​authority | |  | d. | ​science |  |  |  | | --- | --- | | *ANSWER:* | a | | *KEYWORDS:* | SOURCES OF KNOWLEDGE—APPLY | |

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| 11. Hypothesis is to \_\_\_\_\_ as theory is to \_\_\_\_\_.​   |  |  |  | | --- | --- | --- | |  | a. | ​an organized system of assumptions and principles that attempts to explain certain phenomena and how they are related; a prediction regarding the outcome of a study | |  | b. | ​a prediction regarding the outcome of a study; an organized system of assumptions and principles that attempts to explain certain phenomena and how they are related | |  | c. | ​not used in science; used in science | |  | d. | ​used in science; not used in science |  |  |  | | --- | --- | | *ANSWER:* | b | | *KEYWORDS:* | SOURCES OF KNOWLEDGE—THINK CRITICALLY | |

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| 12. An event or behavior that has at least two values is​   |  |  |  | | --- | --- | --- | |  | a. | ​a hypothesis. | |  | b. | ​a theory. | |  | c. | ​a variable. | |  | d. | ​science. |  |  |  | | --- | --- | | *ANSWER:* | c | | *KEYWORDS:* | SOURCES OF KNOWLEDGE—UNDERSTAND | |

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| 13. ​Although Mulder believes in the paranormal, Scully questions the validity of such beliefs because she is a   |  |  |  | | --- | --- | --- | |  | a. | ​pagan. | |  | b. | ​parapsychologist. | |  | c. | ​skeptic. | |  | d. | ​pseudoscientist. |  |  |  | | --- | --- | | *ANSWER:* | c | | *KEYWORDS:* | THE SCIENTIFIC APPROACH AND PSYCHOLOGY—APPLY | |

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| 14. The scientific approach involves using​   |  |  |  | | --- | --- | --- | |  | a. | intuition, skepticism, and tenacity.​ | |  | b. | ​tenacity, public verification, and skepticism. | |  | c. | ​systematic empiricism, public verification, and solvable problems. | |  | d. | ​superstition, intuition, and skepticism. |  |  |  | | --- | --- | | *ANSWER:* | c | | *KEYWORDS:* | THE SCIENTIFIC APPROACH AND PSYCHOLOGY—UNDERSTAND | |

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| 15. The idea that a scientific theory must be stated in such a way that it is possible to refute or disconfirm it is known as the principle of​   |  |  |  | | --- | --- | --- | |  | a. | ​pseudoscience. | |  | b. | ​falsifiability. | |  | c. | ​public verification. | |  | d. | ​systematic empiricism. |  |  |  | | --- | --- | | *ANSWER:* | b | | *KEYWORDS:* | THE SCIENTIFIC APPROACH AND PSYCHOLOGY—UNDERSTAND | |

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| 16. Making observations in a systematic manner to test hypotheses and refute or develop a theory is known as​   |  |  |  | | --- | --- | --- | |  | a. | ​systematic empiricism. | |  | b. | ​the principle of falsifiability. | |  | c. | pseudoscience.​ | |  | d. | ​public verification. |  |  |  | | --- | --- | | *ANSWER:* | a | | *KEYWORDS:* | THE SCIENTIFIC APPROACH AND PSYCHOLOGY—UNDERSTAND | |

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| 17. Questions that are potentially answerable by means of currently available research techniques are known as​   |  |  |  | | --- | --- | --- | |  | a. | systematic empiricism.​ | |  | b. | ​the principle of falsifiability. | |  | c. | ​solvable problems. | |  | d. | ​public verification. |  |  |  | | --- | --- | | *ANSWER:* | c | | *KEYWORDS:* | THE SCIENTIFIC APPROACH AND PSYCHOLOGY—UNDERSTAND | |

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| 18. Presenting research so that it can be observed, replicated, criticized, and tested is known as​   |  |  |  | | --- | --- | --- | |  | a. | ​systematic empiricism. | |  | b. | ​the principle of falsifiability. | |  | c. | ​pseudoscience. | |  | d. | ​public verification. |  |  |  | | --- | --- | | *ANSWER:* | d | | *KEYWORDS:* | THE SCIENTIFIC APPROACH AND PSYCHOLOGY—UNDERSTAND | |

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| 19. \_\_\_\_\_ often violates \_\_\_\_\_.​   |  |  |  | | --- | --- | --- | |  | a. | Science; public verification​ | |  | b. | ​Pseudoscience; the principle of falsifiability | |  | c. | ​Science; systematic empiricism | |  | d. | ​Basic research; systematic empiricism |  |  |  | | --- | --- | | *ANSWER:* | b | | *KEYWORDS:* | THE SCIENTIFIC APPROACH AND PSYCHOLOGY—THINK CRITICALLY | |

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| 20. The three goals of science are to​   |  |  |  | | --- | --- | --- | |  | a. | ​describe, research, and explain. | |  | b. | ​describe, predict, and research. | |  | c. | ​predict, explain, and research. | |  | d. | ​describe, predict, and explain. |  |  |  | | --- | --- | | *ANSWER:* | d | | *KEYWORDS:* | GOALS OF SCIENCE—UNDERSTAND | |

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| 21. When we identify factors that indicate when an event or events will occur, we have used​   |  |  |  | | --- | --- | --- | |  | a. | ​prediction. | |  | b. | ​description. | |  | c. | ​explanation. | |  | d. | ​falsifiability. |  |  |  | | --- | --- | | *ANSWER:* | a | | *KEYWORDS:* | GOALS OF SCIENCE—UNDERSTAND | |

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| 22. Identifying the causes that determine when and why a behavior occurs involves using​   |  |  |  | | --- | --- | --- | |  | a. | ​prediction. | |  | b. | ​description. | |  | c. | ​explanation. | |  | d. | ​falsifiability. |  |  |  | | --- | --- | | *ANSWER:* | c | | *KEYWORDS:* | GOALS OF SCIENCE—UNDERSTAND | |

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| 23. Research on the treatment of AIDS is to \_\_\_\_\_ research as research on the differences between short-term memory and long-term memory is to \_\_\_\_\_ research.​   |  |  |  | | --- | --- | --- | |  | a. | ​basic; applied | |  | b. | ​applied; basic | |  | c. | ​naturalistic; laboratory | |  | d. | ​laboratory; naturalistic |  |  |  | | --- | --- | | *ANSWER:* | b | | *KEYWORDS:* | BASIC AND APPLIED RESEARCH—APPLY | |

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| 24. When Stella finishes graduate school, she wants to conduct research that can be used immediately in order to improve the lives of others. Stella is most interested in \_\_\_\_\_ research.​   |  |  |  | | --- | --- | --- | |  | a. | ​basic | |  | b. | ​applied | |  | c. | ​naturalistic | |  | d. | ​laboratory |  |  |  | | --- | --- | | *ANSWER:* | b | | *KEYWORDS:* | BASIC AND APPLIED RESEARCH—APPLY | |

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| 25. As a researcher, Ray is simply interested in finding answers to the questions he poses. Ray is most interested in \_\_\_\_\_ research.​   |  |  |  | | --- | --- | --- | |  | a. | ​naturalistic | |  | b. | ​laboratory | |  | c. | applied​ | |  | d. | ​basic |  |  |  | | --- | --- | | *ANSWER:* | d | | *KEYWORDS:* | BASIC AND APPLIED RESEARCH—APPLY | |

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| 26. Because Jim was interested in the nest building behavior of wrens, he went into the field to observe them. Jim was using the \_\_\_\_\_ method of research.​   |  |  |  | | --- | --- | --- | |  | a. | ​case study | |  | b. | ​laboratory observational | |  | c. | ​naturalistic observational | |  | d. | ​correlational |  |  |  | | --- | --- | | *ANSWER:* | c | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—APPLY | |

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| 27. Observing the behavior of humans or other animals in a contrived and controlled situation involves using the \_\_\_\_\_ method.​   |  |  |  | | --- | --- | --- | |  | a. | laboratory observational​ | |  | b. | ​naturalistic observational | |  | c. | ​correlational | |  | d. | ​survey |  |  |  | | --- | --- | | *ANSWER:* | a | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—UNDERSTAND | |

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| 28. An in-depth study of one or more individuals is​   |  |  |  | | --- | --- | --- | |  | a. | ​laboratory observation. | |  | b. | ​naturalistic observation. | |  | c. | ​a survey. | |  | d. | ​a case study. |  |  |  | | --- | --- | | *ANSWER:* | d | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—UNDERSTAND | |

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| 29. Questioning individuals on a topic or topics and then describing their responses is to the \_\_\_\_\_ method as an in-depth study of one or more individuals is to the \_\_\_\_\_ method.​   |  |  |  | | --- | --- | --- | |  | a. | case study; survey​ | |  | b. | ​survey; case study | |  | c. | ​case study; observational | |  | d. | ​observational; case study |  |  |  | | --- | --- | | *ANSWER:* | b | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—UNDERSTAND | |

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| 30. A method that assesses the degree of relationship between two variables is the \_\_\_\_\_ method.​   |  |  |  | | --- | --- | --- | |  | a. | ​survey | |  | b. | ​observational | |  | c. | ​case study | |  | d. | ​correlational |  |  |  | | --- | --- | | *ANSWER:* | d | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—UNDERSTAND | |

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| 31. The group of people who participate in the study is to \_\_\_\_\_ as all of the people about whom a study is meant to generalize are to \_\_\_\_\_.​   |  |  |  | | --- | --- | --- | |  | a. | ​sample; population | |  | b. | ​population; sample | |  | c. | ​positive correlation; negative correlation | |  | d. | ​negative correlation; positive correlation |  |  |  | | --- | --- | | *ANSWER:* | a | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—THINK CRITICALLY | |

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| 32. ​Increasing or decreasing together is to \_\_\_\_\_ as moving in an opposite direction is to \_\_\_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | ​quasi-experimental method; experimental method | |  | b. | ​experimental method; quasi-experimental method | |  | c. | ​positive correlation; negative correlation | |  | d. | ​negative correlation; positive correlation |  |  |  | | --- | --- | | *ANSWER:* | c | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—THINK CRITICALLY | |

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| 33. Which of the following is a participant (subject) variable?​   |  |  |  | | --- | --- | --- | |  | a. | ​hair color | |  | b. | ​gender | |  | c. | ​political affiliation | |  | d. | ​all of the above |  |  |  | | --- | --- | | *ANSWER:* | d | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—THINK CRITICALLY | |

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| 34. If a researcher assigns participants to groups based on, for example, their gender, the researcher would be employing​   |  |  |  | | --- | --- | --- | |  | a. | ​a manipulated independent variable. | |  | b. | ​random assignment. | |  | c. | ​a participant variable. | |  | d. | ​a manipulated dependent variable. |  |  |  | | --- | --- | | *ANSWER:* | c | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—APPLY | |

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| 35. In order to discover the extent to which education can be used to predict political preferences, researchers are most likely to engage in​   |  |  |  | | --- | --- | --- | |  | a. | ​correlational research. | |  | b. | ​naturalistic observation. | |  | c. | ​the case study approach. | |  | d. | ​experimental research. |  |  |  | | --- | --- | | *ANSWER:* | a | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—APPLY | |

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| 36. Manipulated independent variable is to nonmanipulated independent variable as \_\_\_\_\_ method is to \_\_\_\_\_ method.​   |  |  |  | | --- | --- | --- | |  | a. | ​experimental; quasi-experimental | |  | b. | ​correlational; quasi-experimental | |  | c. | ​experimental; correlational | |  | d. | ​quasi-experimental; experimental |  |  |  | | --- | --- | | *ANSWER:* | a | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—THINK CRITICALLY | |

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| 37. In an experimental study of the effects of practice on reaction time, practice would be the​   |  |  |  | | --- | --- | --- | |  | a. | ​control group. | |  | b. | ​independent variable. | |  | c. | ​experimental group. | |  | d. | ​dependent variable. |  |  |  | | --- | --- | | *ANSWER:* | b | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—APPLY | |

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| 38. In an experimental study of the effects of practice on reaction time, reaction time would be the​   |  |  |  | | --- | --- | --- | |  | a. | ​control group. | |  | b. | ​independent variable. | |  | c. | ​experimental group. | |  | d. | ​dependent variable. |  |  |  | | --- | --- | | *ANSWER:* | d | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—APPLY | |

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| 39. If participants are randomly assigned to conditions, then \_\_\_\_\_ research is being conducted.​   |  |  |  | | --- | --- | --- | |  | a. | ​case study | |  | b. | ​experimental | |  | c. | ​correlational | |  | d. | ​quasi-experimental |  |  |  | | --- | --- | | *ANSWER:* | b | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—UNDERSTAND | |

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| 40. The group of participants that serves as the baseline in a study is to \_\_\_\_\_ group as the group of participants that receives some level of treatment is to \_\_\_\_\_ group.​   |  |  |  | | --- | --- | --- | |  | a. | ​independent; dependent | |  | b. | ​dependent; independent | |  | c. | ​control; experimental | |  | d. | ​experimental; control |  |  |  | | --- | --- | | *ANSWER:* | c | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—THINK CRITICALLY | |

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| 41. In a study on the effects of sleep on driving performance, sleep would be the​   |  |  |  | | --- | --- | --- | |  | a. | ​control group. | |  | b. | ​independent variable. | |  | c. | ​experimental group. | |  | d. | ​dependent variable. |  |  |  | | --- | --- | | *ANSWER:* | b | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—APPLY | |

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| 42. In a study on the effects of sleep on driving performance, driving performance would be the​   |  |  |  | | --- | --- | --- | |  | a. | ​control group. | |  | b. | ​independent variable. | |  | c. | ​experimental group. | |  | d. | ​dependent variable. |  |  |  | | --- | --- | | *ANSWER:* | d | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—APPLY | |

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| 43. ​Manipulate is to measure as \_\_\_\_\_ is to \_\_\_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | ​independent variable; dependent variable | |  | b. | ​dependent variable; independent variable | |  | c. | ​positive correlation; negative correlation | |  | d. | ​negative correlation; positive correlation |  |  |  | | --- | --- | | *ANSWER:* | a | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—UNDERSTAND | |

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| 44. ​Independent variable is to dependent variable as \_\_\_\_\_ is to \_\_\_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | ​manipulate; measure | |  | b. | ​measure; manipulate | |  | c. | ​controlled; uncontrolled | |  | d. | ​uncontrolled; controlled |  |  |  | | --- | --- | | *ANSWER:* | a | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—UNDERSTAND | |

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| 45. Descriptive methods include​   |  |  |  | | --- | --- | --- | |  | a. | ​correlational and quasi-experimental methods. | |  | b. | ​only the experimental method. | |  | c. | ​observational, case study, and survey methods. | |  | d. | ​only the quasi-experimental method. |  |  |  | | --- | --- | | *ANSWER:* | c | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—UNDERSTAND | |

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| 46. Random assignment is used exclusively in the \_\_\_\_\_ method.​   |  |  |  | | --- | --- | --- | |  | a. | ​experimental | |  | b. | ​quasi-experimental | |  | c. | ​correlational | |  | d. | ​case study |  |  |  | | --- | --- | | *ANSWER:* | a | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—UNDERSTAND | |

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| 47. Explain what it means to gain knowledge via science.​   |  |  | | --- | --- | | *ANSWER:* | *Gaining knowledge via science involves a merger of rationalism and empiricism. Scientists collect data (make empirical observations) and test hypotheses with these data (assess them using rationalism). By merging rationalism with empiricism, we have the advantage of using a logical argument based on observation.*​ | | *KEYWORDS:* | SOURCES OF KNOWLEDGE—UNDERSTAND | |

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| 48. ​Briefly describe what a hypothesis is and what a theory is noting the relationship between these terms.   |  |  | | --- | --- | | *ANSWER:* | ​*A hypothesis is a prediction regarding the outcome of a study. Often, this prediction concerns the relationship between two variables. We may find that our hypothesis is not supported, and thus we have to reevaluate our position. On the other hand, our observations may support the hypothesis being tested. The goal of testing hypotheses is to arrive at or test a theory—an organized system of assumptions and principles that attempts to explain certain phenomena and how they are related.* | | *KEYWORDS:* | SOURCES OF KNOWLEDGE—UNDERSTAND AND THINK CRITICALLY | |

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| 49. Identify and briefly describe the three criteria that help to define science.​   |  |  | | --- | --- | | *ANSWER:* | *The three criteria are: systematic empiricism; public verification; and solvable problems. Systematic empiricism involves making observations in a systematic manner in order to test hypotheses and refute or develop a theory. Public verification involves presenting research to the public so that it can be observed, replicated, criticized, and tested. Lastly, using solvable problems means that scientists study only questions that are potentially answerable by means of currently available research techniques.*​ | | *KEYWORDS:* | THE SCIENTIFIC APPROACH AND PSYCHOLOGY—UNDERSTAND | |

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| 50. ​What is the principle of falsifiability and how is it related to pseudoscience and science?   |  |  | | --- | --- | | *ANSWER:* | *The principle of falsifiability is the idea that a scientific theory must be stated in such a way that it is possible to refute or disconfirm it. Scientific research must meet the principle of falsifiability, whereas pseudoscience usually falls short of this principle.*​ | | *KEYWORDS:* | THE SCIENTIFIC APPROACH AND PSYCHOLOGY—UNDERSTAND | |

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| 51. Identify and briefly describe the three goals of science.​   |  |  | | --- | --- | | *ANSWER:* | *The three goals of science are to describe, predict, and explain. Describing involves carefully observing behavior and then describing it. Prediction allows us to identify the factors that indicate when an event or events will occur. Lastly, explanation involves identifying the causes that determine when and why a behavior occurs.*​ | | *KEYWORDS:* | GOALS OF SCIENCE—UNDERSTAND | |

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| 52. Give an example of basic research and an example of applied research.​   |  |  | | --- | --- | | *ANSWER:* | *An example of basic research would be studying how the human memory system works simply because one is interested in this topic. An example of applied research would be studying how Alzheimer’s disease affects memory in an attempt to help those with the disease.*​ | | *KEYWORDS:* | BASIC AND APPLIED RESEARCH—APPLY | |

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| 53. Explain what a negative correlation between depression and self-esteem means.​   |  |  | | --- | --- | | *ANSWER:* | *A negative correlation between depression and self-esteem indicates that those who are more depressed tend to also be those with lower self-esteem, whereas those who are less depressed tend to be those with higher self-esteem. It* ***does not*** *indicate that depression causes problems with self-esteem or that low self-esteem causes depression.* | | *KEYWORDS:* | A INTRODUCTION TO RESEARCH METHODS IN SCIENCE—THINK CRITICALLY | |

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| 54. ​In a study of the effects of nicotine on concentration, participants who smoke are compared to those who do not on a measure of concentration. Identify the independent variable and dependent variable in this study. Is the independent variable a manipulated variable or a participant variable? What type of research method is used in this study?   |  |  | | --- | --- | | *ANSWER:* | *The independent variable is the amount of nicotine (the smoking versus nonsmoking groups) and the dependent variable is concentration level. The independent variable is a participant variable because we are using participants who either chose to smoke or not to smoke. The study utilizes the quasi-experimental method.*​ | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—THINK CRITICALLY | |

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| 55. ​In a study comparing collaborative group learning to the traditional lecture/discussion method of learning, participants are randomly assigned to one of the two conditions. Identify the independent variable and dependent variable in this study. Is the independent variable a manipulated variable or a participant variable? What type of research method is used in this study?   |  |  | | --- | --- | | *ANSWER:* | *The independent variable is the type of learning (group or traditional) and the dependent variable is how well the information is learned. The independent variable is manipulated—participants are randomly assigned to the two conditions. The study utilizes the experimental method.*  ​ | | *KEYWORDS:* | AN INTRODUCTION TO RESEARCH METHODS IN SCIENCE—THINK CRITICALLY | |

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| 56. Test the hypothesis presented in the problem below.​  ​   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | *ANSWER:* | Each of the cards below has a number on one side and a letter on the other side. Two of the cards have their letter side showing and two have their number side showing. Here is a rule: “If a card has a vowel on one side, then it has an even number on the other side”. In order to check that the rule is true or false, which card or cards below would you turn over? Turn over only the card or cards that you need to check to be sure.  ​  ​   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  | |  |  | | |  | | --- | | ​  **D** | |  |  |  |  | |  | |  | | --- | | ​  **A** | |  |  | |  | | --- | | ​  **4** | |  | |  | | --- | | ​  **7** | | |  |  |  |  |  |   ​  ​  ​  ​  ​  ​  ​  Answer the problem and explain how it relates to hypothesis testing, proof, and disproof as discussed in the text.  *The A card and the 7 card should be turned over. This relates to hypothesis testing in that when one tests a hypothesis, one tries to falsify that hypothesis, not confirm it or prove it true. Thus, the only cards that could potentially falsify the rule are the A card (there could be something other than an even number on the other side) and the 7 card (there could be a vowel on the other side). In other words, when testing hypotheses, one uses the principle of falsifiability. We cannot prove hypotheses true; instead we try to disprove them. If they cannot be falsified, we say they have been supported (not proven true).* | | *KEYWORDS:* | PROOF AND DISPROOF—THINKING CRITICALLY | |