

## EXERCISES

1. Match the following to the qualities of science.
 

— testable	a. allows science to learn from mistakes
— skeptical	b. provides observable, unbiased evidence
— objective	c. publishing research reports
— public	d. questions authority
— productive	e. makes progress
2. Scientists are skeptical of case studies, examples, and stories. For example, consider the following case: A friend remembers that, during his early teen years, giving up chocolate cleared up his complexion. Why would a skeptical scientist not accept this statement as proof that giving up chocolate reduces acne? Hints: In addition to considering how objective your friend's evidence is, consider main points 8, 9, and 10.
3. Give one example of an untestable statement. Then, change that statement into a testable statement by either making it a prediction rather than an after-the-fact explanation or by making it more specific. Finally, state at least one advantage of scientists making testable, rather than untestable, statements.
4. Provide a dictionary definition of a psychological concept, such as love. Then, provide an operational definition of that concept. (Be sure that your operational definition is an objective recipe that others can follow. The recipe should either the stimuli you will present to manipulate the concept or the behavior you will observe to measure the concept.) Next, explain how your operational definition differs from a dictionary definition of that concept. Finally, explain how operational definitions help psychology to
  - a. be objective
  - b. make testable statements
  - c. be public
  - d. be productive
5. How does the ability of psychologists to replicate each other's work help psychology to be
  - a. skeptical?
  - b. open-minded?
  - c. productive?
6. Some early psychologists studied and reported on their own thoughts. For example, a person would solve a mathematical problem and then report on everything that went on in his mind during the time that he worked on the problem. What quality of science was missing in these studies?
7. From what you know about astrology, grade it as "pass" or "fail" on the following scientific characteristics:
  - a. makes testable statements
  - b. is productive (knowledge is refined, new discoveries are made)
  - c. seeks objective, unbiased evidence to test the accuracy of beliefs
8. According to some, iridology is the "science" of determining people's health by looking at their eyes. Practitioners tend not to publish research, they don't try to verify their diagnoses through other means, and different practitioners will diagnose the same patient very differently. From this brief description of iridology, what characteristics of science does iridology lack?
9. Some claim that psychoanalysis is not a science. They attack it by claiming that it lacks certain characteristics of science. Following are three such attacks. For each attack, name the characteristic of science that psychoanalysis is accused of lacking.
  - a. "Psychoanalytic explanations for a person's behavior often fit with the facts but are generally made after the fact."
  - b. "The unconscious is impossible to observe."
  - c. "The effectiveness of psychoanalysis does not appear to have improved in the last 20 years."