

Sample test 2. This hits the major topics we covered in chapters 6,8,9,10,11,12

Use the following to answer questions 1-2:

Each month the census bureau mails survey forms to 250,000 households asking questions about the people living in the household and about such things as motor vehicles and housing costs. Telephone calls are made to households that don't return the form. In one month, responses were obtained from 240,000 of the households contacted.

1. What is the sample?
  - A) The 250,000 households initially contacted.
  - B) The 240,000 households that respond.
  - C) The 10,000 households that did not respond.
  - D) All U.S. households.
  
2. What is the population of interest?
  - A) The residents in the suburb that support the new recreation center.
  - B) The 250,000 households contacted.
  - C) U.S. households with phones.
  - D) All U.S. households.

Use the following to answer questions 3-4:

A researcher finds 4000 men over 40 who exercise regularly, have not had a heart attack, and are willing to participate in the study. She assigns 2000 of the men to a regular program of supervised exercise. The other 2000 continue their usual habits. Both groups are followed for five years and fewer heart attacks are observed in the group assigned to a regular program of supervised exercise.

3. What is the factor in the experiment?
  - A) Whether a heart attack occurred.
  - B) Use of a group continuing regular habits.
  - C) Exercise program (supervised or usual habits).
  - D) The length of the study.
  
4. What is the response variable?
  - A) Whether a heart attack occurred.
  - B) The proportion of heart attacks occurring in the supervised exercise group.
  - C) Whether the symptoms lessened.
  - D) The age of the men.

5. An educational researcher used school records to determine that, in one school district, 84% of children living in two-parent homes graduated high school while 75% of children living in single-parent homes graduated high school. Is this an example of a prospective observational study, a retrospective observational study, or an experiment?
- A) An experiment.
  - B) A prospective observational study.
  - C) A retrospective observational study
6. In a survey of American women who were asked to name their favorite color, 18% said blue, 19% said red, 18% said green, 12% said yellow, 14% said black, and the rest named another color. If you pick a survey participant at random, what is the probability that her favorite color is yellow or black?
7. The American Red Cross says that about 45% of the U.S. population has Type O blood, 40% Type A, 11% Type B, and the rest Type AB. Among five donors, what is the probability that no one is Type AB?

The weight of crackers in a box is stated to be 16 ounces. The amount that the packaging machine puts in the boxes is believed to have a Normal model with mean 16.15 ounces and standard deviation 0.3 ounces. Use this to answer questions 8 and 9.

8. What is the probability that a randomly selected box weighs less than 16 ounces?

9. What is the probability that the mean weight of a 16-box case of crackers is below 16 ounces?

The table shows the careers of a group of retired people and their ages at retirement. Use this table to answer questions 10 - 12.

		Age at Retirement				
		50 - 55	56 - 60	61 - 65	Over 65	Total
Career	Attorney	12	35	99	41	187
	Professor	10	43	99	32	184
	Secretary	21	45	63	49	178
	Store Clerk	18	44	70	50	182
	Total	61	167	331	172	731

10. What is the probability that a randomly selected person was an attorney that retired between the ages of 50 and 55?

11. What is the probability that a randomly selected person was retired after age 65?

12. What is the probability that a randomly selected person is a secretary given that they retired at age 53?

## **Answer Key**

1. B
2. D
3. C
4. A
5. C
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.