

# Level D - Form 1 - Applied Mathematics: Statistics and Probability

## Sample Question

Kelly rolls a six-sided die labeled 1 through 6.  
What is the probability that she will roll a 5?

- A  $\frac{1}{5}$
- B  $\frac{1}{2}$
- C  $\frac{1}{6}$
- D  $\frac{5}{6}$

## Level D - Form 1 - Applied Mathematics: Statistics and Probability

1. You roll a six-sided die. What is the probability of rolling a five?

A  $\frac{1}{5}$

B  $\frac{1}{6}$

C  $\frac{6}{1}$

D  $\frac{5}{6}$

2. You roll a six-sided die. What is the probability of rolling an odd number?

F  $\frac{1}{6}$

G  $\frac{2}{3}$

H  $\frac{1}{2}$

J  $\frac{1}{3}$

**Irma keeps eight T-shirts folded in her drawer. Three of them are blue, three are green, one is red, and one is black. Use this information to do Numbers 3 through 5.**

3. She reaches into the drawer without looking and takes out a T-shirt. What is the probability that Irma will choose a blue T-shirt?

A  $\frac{3}{8}$

B  $\frac{1}{3}$

C  $\frac{3}{5}$

D  $\frac{5}{8}$

4. She reaches into the drawer without looking and takes out a T-shirt. What is the probability that Irma will choose a red T-shirt?

F  $\frac{1}{7}$

G  $\frac{7}{8}$

H  $\frac{1}{8}$

J  $\frac{1}{3}$

5. She reaches into the drawer without looking and takes out a T-shirt. What is the probability that Irma will choose either a black or green T-shirt?

A  $\frac{1}{8}$

B  $\frac{3}{8}$

C  $\frac{1}{1}$

D  $\frac{1}{2}$

The table shows the results of a survey in which people were asked their favorite kind of movie. Study the table. Then do Numbers 6 through 8.

My Favorite Kind of Movie	
Category	Number of Responses
Drama	40
Comedy	80
Action/Adventure	20
Horror	10
Romance	50

6. What is the probability that a person from the survey names romance as his or her favorite kind of movie?

- F  $\frac{1}{2}$   
 G  $\frac{1}{5}$   
 H  $\frac{1}{3}$   
 J  $\frac{1}{4}$

7. What is the probability that a person from the survey names either comedy or action/adventure as his or her favorite kind of movie?

- A  $\frac{1}{4}$   
 B  $\frac{1}{2}$   
 C  $\frac{2}{5}$   
 D  $\frac{1}{10}$

8. Based on the results of this survey, how many people out of 5,000 would you expect to choose drama as their favorite kind of movie?

- F 1,250  
 G 1,040  
 H 1,000  
 J 2,000

During the past nine games, the Lions scored 7, 5, 6, 5, 8, 7, 5, 1, and 10 runs. Use this information to do Numbers 9 through 11.

9. What is the range of this data?
  - A 10
  - B 9
  - C 5
  - D 1
  
10. What is the mean number of runs the Lions scored in a game?
  - F 9
  - G 5
  - H 6
  - J 7
  
11. What is the mode of this data set?
  - A 7
  - B 5
  - C 9
  - D 6

The table shows the miles Ralph ran one week while training for a marathon. Study the table. Then do Numbers 12 through 15.

Day	Number of Miles
Monday	6
Tuesday	14
Wednesday	12
Thursday	8
Friday	0
Saturday	5
Sunday	18

12. What is the range of this data?
  - F 18
  - G 13
  - H 10
  - J 8
  
13. What is the mode for this set of data?
  - A There is no mode.
  - B 0
  - C 8
  - D 18
  
14. What is Ralph's mean mileage for the week?
  - F 8
  - G 9
  - H 10.5
  - J 18
  
15. What is the median of this data set?
  - A 8
  - B 6
  - C 12
  - D 9

16. Teresa wants to know what people's favorite food is. Which of these survey locations would most likely give her biased results?
- F outside an Italian restaurant
  - G near an airport ticket counter
  - H at a shopping center entrance
  - J in line at a cafeteria
17. Creamy Ice Cream Company just developed a new ice cream flavor. A company supervisor is asking people if they like the new flavor. Which of the following groups would most likely produce biased results?
- A school-aged children
  - B patrons of an ice cream shop
  - C adults between the ages of 18 and 34
  - D Creamy Ice Cream Company employees
18. Jerome wishes to find out whether Listen Best, a local audio store, is the most popular audio store in the neighborhood. Which of these questions would give him the most unbiased results?
- F Which audio store in the neighborhood has the largest number of CDs?
  - G Where do you shop for CDs?
  - H Why is Listen Best the best audio store in the area?
  - J Which audio store in the neighborhood has the best variety of CDs?
19. In a game preserve, rangers tagged a sampling of mammals. Thirty percent were brown bears, 25% were black bears, 35% were deer, and 10% were wolves. Suppose that there are 3,500 mammals in the preserve. How many black bears would you expect to find there?
- A 100
  - B 1,050
  - C 875
  - D 1,925
20. A local children's clothing store wants to know which products they should display in the window to attract customers. Which of these groups should they sample?
- F high school teachers
  - G parents of children
  - H owners of stores in the neighborhood
  - J child models or actors