15 - Probability

1. A coin is flipped thrice. What is the probability of getting 2 heads?
A) 3/8 B) 1/4 C) 1/2
D) 7/8 E) 1/8

2. A coin is flipped 5 times. What is the probability of getting exactly 4 tails?
A) 1/32 B) 1/16 C) 3/32
D) 4/32 E) 5/32

3. A card is drawn at random from a pack of 52 cards. What is the probability that it is either an Ace or a picture (Jack, King, Queen) card?
A) 11/26 B) 4/13 C) 8/13
D) 11/13 E) 14/96

4. What is the probability of drawing a King or a Hearts card from a pack of 52 cards?
A) 3/52 B) 4/13 C) 4/26
D) 1/26 E) 17/52

5. A bag contains 7 yellow, 3 red and 5 green marbles. Jack draws two marbles at random without replacement. What is the probability that none of the marbles are Red?
A) 1/11 B) 2/11 C) 5/33
D) 22/35 E) 34/35

6. Refer to the data in question 5. What is the probability that both marbles are yellow?
A) 1/5 B) 49/225 C) 5/33
D) 14/33 E) 94/105

7. Refer to the data in question 5. What is the probability that one is Red and the other is Green?
A) 1/14 B) 1/7 C) 39/70
D) 35/39 E) 1/196

8. If a coin is flipped 5 times, what is the pro that exactly 3 tails will occur?
A) 1/32 B) 5/32 C) 5/16
D) 1/16 E) 7/16

9. A committee of 5 members is chosen randomly from a group of 4 men and 5 women. What is the probability that the chosen committee contains exactly 3 men and 2 women?
A) 20/63 B) 1/126 C) 2/63
D) 10/63 E) 7/63

10. In a drawer there are 4 blue, 2 green and 4 magenta shirts. If 2 shirts are drawn at random, what is the probability at least one of the shirts will be blue?
A) 1/3 B) 1/6 C) 2/3 D) 8/15 E) 7/8

11. A number is chosen at random from 1 to 100. What is the probability that the number is divisible by 6?
A) 1/25 B) 1/50 C) 3/50 D) 1/20 E) 4/25

12. A number is chosen at random from 1 to 100. What is the probability that the number is divisible by 2 or 3 (or both)?
A) 83/100 B) 67/100 C) 1/6
D) 33/200 E) 4/25

13. A bag of marbles contains 6 red and 4 blue marbles. If 3 marbles are drawn at random (without replacement), what is the probability that it will contain exactly 2 red and 1 blue marble?
A) 1/2 B) 1/6 C) 1/5 D) 1/4 E) 1/3

14. There are 3 roads from A to B, and 5 roads from B to C. If Jack is going from A to C through B, and Mary is going from C to A through B, what is the probability that they will meet each other on the way?
A) 1/15 B) 2/15 C) 1/5 D) 8/15 E) 2/3

15. A jar contains only x black balls and y white balls. One ball is drawn randomly from the jar and is not replaced. A second ball is then drawn randomly from the jar. What is the probability that the first ball drawn is black and the second ball drawn is white?

A) $\left(\frac{x}{x+y}\right)\left(\frac{y}{x+y}\right)$ B) $\left(\frac{x}{x+y}\right)\left(\frac{x-1}{x+y-1}\right)$

C) $\frac{xy}{x+y}$ D) $\left(\frac{x-1}{x+y}\right)\left(\frac{y-1}{x+y}\right)$

E) $\left(\frac{x}{x+y}\right)\left(\frac{y}{x+y-1}\right)$

16. If a person purchases 15 of the 3,000 tickets sold in a raffle that awards one prize, what is the probability that this person will not win?

A) 0 B) $\frac{1}{200}$ C) $\frac{1}{2}$ D) $\frac{199}{200}$ E) 1

17. Raffle tickets numbered consecutively from 101 through 350 are placed in a box. What is the probability that a ticket selected at random will have a number with a hundreds digit of 2?

A) $\frac{2}{5}$ B) $\frac{2}{7}$ C) $\frac{83}{83}$ D) $\frac{99}{250}$ E) $\frac{100}{249}$

18. If a 3-digit integer is selected at random from the integers 100 through 199, inclusive, what is the probability that the first digit and the last digit of the integer are each equal to one more than the middle digit?

A) $\frac{2}{225}$ B) $\frac{1}{111}$ C) $\frac{1}{110}$ D) $\frac{1}{100}$

19. Xavier, Yvonne, and Zelda each try independently to solve a problem. If their individual probabilities for success are $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{5}{8}$, respectively, what is the probability that Xavier and Yvonne, but not Zelda, will solve the problem?

A) $\frac{11}{8}$ B) $\frac{7}{8}$ C) $\frac{9}{64}$

D) $\frac{5}{64}$ E) $\frac{3}{64}$

20. Sixty percent of the members of a study group are women, and 45 percent of those women are lawyers. If one member of the study group is to be selected at random, what is the probability that the member selected is a woman lawyer?

A) 0.10 B) 0.15 C) 0.27 D) 0.33 E) 0.45