

Ch 4 Probability Practice Test

True/False

Indicate whether the sentence or statement is true or false.

If false, write the corrected statement in the space provided.

- _____ 1. When you look as you choose an object from a group, you are choosing at random.

- _____ 2. The formula to determine probability is
Probability = $\frac{\text{all outcomes}}{\text{favourable outcomes}}$

- _____ 3. When rolling a standard number cube, the probability of rolling an even number is $\frac{1}{3}$.

- _____ 4. There are nine possible outcomes when tossing a coin three times.

- _____ 5. When rolling a standard number cube, the probability of rolling the number 4 or greater is $\frac{2}{6}$, or $\frac{1}{3}$.

- _____ 6. When rolling two standard number cubes, you have a better chance of rolling a sum that is odd than a sum that is even.

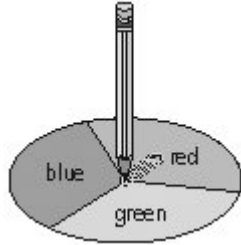
- _____ 7. A simulation is a probability experiment used to model a made-up situation.

- _____ 8. Strategies that give less favourable outcomes improve your chances of winning.

Multiple Choice

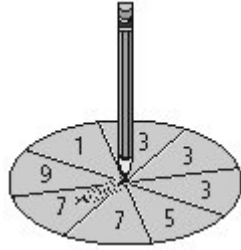
Identify the letter of the choice that best completes the statement or answers the question.

- _____ 9. If you spin this spinner 30 times how many times would you expect it to land on red?



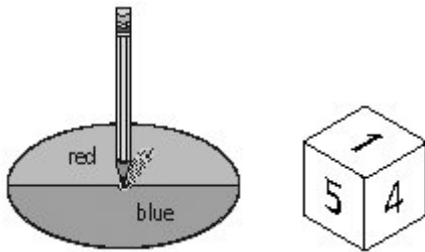
- a. 3
b. 10
- c. 15
d. 30
10. What is the probability of drawing the 8 of \spadesuit from a deck of 52 cards?
a. $\frac{4}{52}$
b. $\frac{8}{52}$
c. $\frac{1}{52}$
d. $\frac{52}{1}$
11. A fair spinner is divided into 6 equal parts: 3 green, 2 blue, and 1 red. What is the probability of spinning a green?
a. $\frac{1}{2}$
b. $\frac{1}{3}$
c. $\frac{1}{5}$
d. $\frac{1}{6}$
12. The letters of the word MATHEMATICS are written on cards and placed in a bag. One card is drawn from the bag. What is the probability of drawing a letter that is a vowel?
a. $\frac{2}{11}$
b. $\frac{4}{11}$
c. $\frac{6}{11}$
d. $\frac{8}{11}$
13. A fair spinner is divided into equal parts numbered 1 to 7. What is the probability of spinning two 5s in a row on this spinner?
a. $\frac{1}{7}$
b. $\frac{1}{49}$
c. $\frac{5}{49}$
d. $\frac{10}{49}$
14. The first letters of the months are written on cards and the cards are placed in a bag. a card is drawn from the bag. What is the probability of drawing an M?
a. $\frac{1}{12}$
b. $\frac{2}{12}$
c. $\frac{4}{12}$
d. none of the above
15. To simulate an event such as guessing the gender of a baby, you would use
a. a number cube
b. a coin
c. a spinner with 3 sections
d. none of the above
16. What is the probability of drawing the 9 of any suit from a 52 deck of cards?
a. $\frac{4}{52}$
c. $\frac{1}{52}$

26. Corrine thinks that if she tosses a coin three times, she has a higher probability of tossing 2 heads and a tail than tossing 3 tails. Is Corrine correct? Explain.
27. There are 7 red, 2 white, and 4 blue marbles in Sheri's bag of marbles. What is the probability of Sheri drawing a red or a blue marble from her bag?
28. If the following spinner is spun 80 times, what is the predicted outcome for each number? Complete the graph.



Outcome	Predicted Outcomes for 80 Spins
1	
3	
5	
7	
9	

29. A grade 7 class has 29 students. How many names must you draw to ensure that at least 2 of the names drawn have the same birthday month?
30. List the possible outcomes when you spin the spinner with two equal sections and toss a standard number cube.



31. A bag contains 6 red balls, 5 green balls, and 4 pink balls. How many balls must you take out to be sure that you have at least 3 balls of each colour?
32. A baseball team has 6 pitchers and 3 catchers. If the catchers never pitch and the pitchers never catch, how many different outcomes are possible?
33. A jar contains 48 marbles of different colours. There are twice as many yellow as red, and twice as many blue as white. There are 6 more white than red. What is the probability of picking a red?
34.
 - a) You roll a pair of standard number cubes. List all the possible outcomes that have a sum of 5.
 - b) What is the probability of rolling two numbers that have a sum of 5?
35. Steven works at an ice cream store. On Monday, he sold 60 items: 30 ice cream cones, 10 bottles of water, and 20 ice cream bars. Create a spinner that could be used in a simulation based on this situation.
36. Heather has a batting average of 0.400. How many hits will she get if she bats 300 times?
37. A soccer goalie has saved 14 goals and let in 1 goal. Out of 90 shots on net, how many goals will the goalie likely let in?

Ch 4 Probability Practice Test

Answer Section

TRUE/FALSE

1. ANS: F

When you look as you choose an object from a group, you are NOT choosing at random.

DIF: Level 1 REF: Knowledge/Understanding OBJ: Section 4.1
STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Random

2. ANS: F

The formula to determine probability is

$$\text{Probability} = \frac{\text{favourable outcomes}}{\text{all outcomes}}$$

DIF: Level 2 REF: Knowledge/Understanding OBJ: Section 4.1
STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Formula

3. ANS: F

When rolling a standard number cube, the probability of rolling an even number is $\frac{1}{2}$.

DIF: Level 1 REF: Knowledge/Understanding OBJ: Section 4.3
STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Number Cube

4. ANS: F

There are eight possible outcomes when tossing a coin three times.

DIF: Level 2 REF: Application OBJ: Section 4.3 STO: DMP-7m88
TOP: Data Management and Probability KEY: Probability, Coin

5. ANS: F

When rolling a standard number cube, the probability of rolling the number 4 or greater is $\frac{1}{2}$.

DIF: Level 3 REF: Knowledge/Understanding OBJ: Section 4.3
STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Number Cube

6. ANS: F

When rolling two standard number cubes, you have an equal chance of rolling a sum that is odd than a sum that is even.

DIF: Level 3 REF: Thinking/Inquiry/Problem Solving OBJ: Section 4.3
STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Number Cube

7. ANS: F

A simulation is a probability experiment used to model a real situation.

DIF: Level 2 REF: Knowledge/Understanding OBJ: Section 4.4
STO: DMP-7m88 TOP: Data Management and Probability KEY: Simulation

8. ANS: F

Strategies that give more favourable outcomes improve your chances of winning.

DIF: Level 3 REF: Knowledge/Understanding OBJ: Section 4.5
 STO: DMP-7m88 TOP: Data Management and Probability KEY: Outcome, Favourable

MULTIPLE CHOICE

9. ANS: B DIF: Level 2 REF: Knowledge/Understanding
 OBJ: Section 4.2 STO: DMP-7m88 TOP: Data Management and Probability
 KEY: Probability, Spinner
10. ANS: C DIF: Level 2 REF: Communication
 OBJ: Section 4.2 STO: DMP-7m88 TOP: Data Management and Probability
 KEY: Probability, Card
11. ANS: A DIF: Level 3 REF: Knowledge/Understanding
 OBJ: Section 4.2 STO: DMP-7m88 TOP: Data Management and Probability
 KEY: Probability, Spinner
12. ANS: B DIF: Level 3 REF: Application OBJ: Section 4.2
 STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability
13. ANS: B DIF: Level 3 REF: Thinking/Inquiry/Problem Solving
 OBJ: Section 4.2 STO: DMP-7m88 TOP: Data Management and Probability
 KEY: Probability, Spinner
14. ANS: B DIF: Level 3 REF: Application OBJ: Section 4.3
 STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability
15. ANS: B DIF: Level 1 REF: Knowledge/Understanding
 OBJ: Section 4.4 STO: DMP-7m88 TOP: Data Management and Probability
 KEY: Simulation
16. ANS: A DIF: Level 2 REF: Communication
 OBJ: Section 4.5 STO: DMP-7m88 TOP: Data Management and Probability
 KEY: Probability, Card
17. ANS: A DIF: Level 3 REF: Thinking/Inquiry/Problem Solving
 OBJ: Section 4.5 STO: DMP-7m88 TOP: Data Management and Probability
 KEY: Probability, Sport
18. ANS: A DIF: Level 3 REF: Thinking/Inquiry/Problem Solving
 OBJ: Section 4.5 STO: DMP-7m88 TOP: Data Management and Probability
 KEY: Probability, Game

COMPLETION

19. ANS: proper, decimal

 DIF: Level 2 REF: Knowledge/Understanding OBJ: Section 4.1
 STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Fraction, Decimal
20. ANS: combined

 DIF: Level 2 REF: Knowledge/Understanding OBJ: Section 4.2
 STO: DMP-7m88 TOP: Data Management and Probability KEY: Outcome, Combined
21. ANS: fifty

 DIF: Level 2 REF: Knowledge/Understanding OBJ: Section 4.2
 STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Chance

MATCHING

22. ANS: B DIF: Level 2 REF: Communication
 OBJ: Section 4.1 STO: DMP-7m88 TOP: Data Management and Probability
 KEY: Probability
23. ANS: A DIF: Level 2 REF: Communication
 OBJ: Section 4.1 STO: DMP-7m88 TOP: Data Management and Probability
 KEY: Tally Chart
24. ANS: F DIF: Level 2 REF: Communication
 OBJ: Section 4.1 STO: DMP-7m88 TOP: Data Management and Probability
 KEY: Outcome, Favourable
25. ANS: C DIF: Level 2 REF: Communication
 OBJ: Section 4.1 STO: DMP-7m88 TOP: Data Management and Probability
 KEY: Frequency Table

SHORT ANSWER

26. ANS:
 Corrine is correct.

Possible outcomes: HHH, HHT, HTH, HTT, THH, THT, TTH, TTT

$$\text{Probability (3 heads)} = \frac{\text{favourable outcomes}}{\text{all outcomes}} = \frac{1}{8}$$

$$\text{Probability (2 heads and 1 tail)} = \frac{\text{favourable outcomes}}{\text{all outcomes}} = \frac{3}{8}$$

DIF: Level 4 REF: Thinking/Inquiry/Problem Solving OBJ: Section 4.1
 STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Coin

27. ANS:
 Probability (a red or a blue) = $\frac{\text{favourable outcomes}}{\text{all outcomes}} = \frac{11}{13}$

DIF: Level 2 REF: Knowledge/Understanding OBJ: Section 4.2
 STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability

28. ANS:

Outcome	Predicted Outcomes for 80 Spins
1	10
3	30
5	10
7	20
9	10

DIF: Level 2 REF: Communication OBJ: Section 4.2

STO: DMP-7m88 TOP: Data Management and Probability KEY: Outcome
 29. ANS:
 You must draw 13 names.

DIF: Level 2 REF: Thinking/Inquiry/Problem Solving OBJ: Section 4.2
 STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability
 30. ANS:
 There are 12 possible outcomes:
 R1, R2, R3, R4, R5, R6, B1, B2, B3, B4, B5, B6

DIF: Level 3 REF: Knowledge/Understanding OBJ: Section 4.2
 STO: DMP-7m88 TOP: Data Management and Probability KEY: Outcome
 31. ANS:
 The first 6 could be all red, the next 5 could be all green, and the next 3 will have to be all pink. Therefore, you have to take out 14 balls.

DIF: Level 3 REF: Thinking/Inquiry/Problem Solving OBJ: Section 4.2
 STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability
 32. ANS:
 There are 18 possible outcomes.

DIF: Level 4 REF: Knowledge/Understanding OBJ: Section 4.2
 STO: DMP-7m88 TOP: Data Management and Probability KEY: Outcome
 33. ANS:
 Of the 48 marbles, there are
 n red
 $2n$ yellow
 $n + 6$ white
 $2(n + 6)$ blue
 $n = 5$
 There are 5 red marbles.

$$\text{Probability (red)} = \frac{\text{favourable outcomes}}{\text{all outcomes}} = \frac{5}{48}$$

DIF: Level 4 REF: Thinking/Inquiry/Problem Solving OBJ: Section 4.2
 STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability
 34. ANS:
 a) The outcomes are (2, 3), (3, 2), (1, 4), (4, 1), so there are four favourable outcomes.
 b) Probability (sum of 5) = $\frac{\text{favourable outcomes}}{\text{all outcomes}} = \frac{4}{36}$

DIF: Level 3 REF: Application OBJ: Section 4.3 STO: DMP-7m88
 TOP: Data Management and Probability KEY: Probability, Outcome
 35. ANS:
 The spinner should have 3 sections, divided according to the following percentages and labelled.

- 50% ice cream cones
- 33.5% ice cream bars
- 16.5% bottles of water

DIF: Level 3 REF: Thinking/Inquiry/Problem Solving OBJ: Section 4.4

STO: DMP-7m88 TOP: Data Management and Probability KEY: Simulation

36. ANS:

A batting average of 0.400 means that Heather has 400 hits in 1000 at-bats.

$$\text{Probability (hit)} = \frac{400}{1000}, \text{ or } \frac{4}{10}$$

Of 300 hits, Heather will likely get 120 hits.

DIF: Level 3 REF: Knowledge/Understanding

OBJ: Section 4.5

STO: DMP-7m88 TOP: Data Management and Probability

KEY: Probability, Sport

37. ANS:

$$\text{Probability} = \frac{\text{favourable outcomes}}{\text{all outcomes}}$$

$$\text{Probability} = \frac{1 \text{ goal}}{15 \text{ goals}} = \frac{1}{15}$$

Out of 90 goals, the goalie will likely let in 6 goals.

DIF: Level 3

REF: Thinking/Inquiry/Problem Solving

OBJ: Section 4.5

STO: DMP-7m88

TOP: Data Management and Probability

KEY: Probability, Sport