CHAPTER 4

Practice Test

Strand	NSN	MEA	GSS	PA	DMP
Questions	5, 6, 11				1–13

Multiple Choice

For questions 1 to 6, select the best answer.

1. What is the probability of guessing a wrong answer on a multiple choice test, when there are 4 options?

A $\frac{3}{4}$ **B** $\frac{1}{4}$ **C** 0 **D** 1

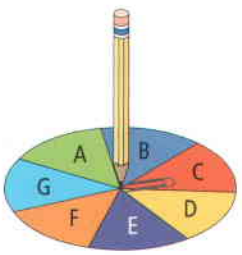
2. A cube numbered 1, 1, 2, 3, 4, 5 is rolled. The probability of rolling less than 3 is

A $\frac{1}{3}$ **B** $\frac{2}{3}$ **C** $\frac{4}{6}$ **D** $\frac{1}{2}$

3. When you roll a number cube, which outcome is most likely?

A rolling a 3
B rolling a number greater than 2
C rolling an even number
D rolling a sum of 7

4. This spinner is spun 50 times. Approximately how many times would you expect the outcome E?



A 4 **B** 7
C 10 **D** 13

5. If your baseball batting average is 0.400, how many hits would you expect to get in 20 at-bats?

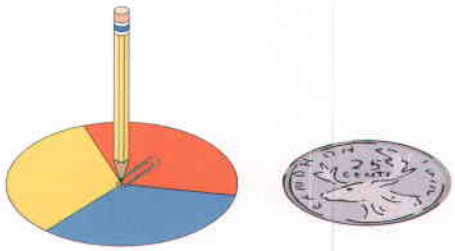
A 4 **B** 12
C 8 **D** 6

Short Answer

6. Each letter of the word PROBABILITY is written on a separate card and placed face down. You choose a card.

a) What is the probability of choosing the letter I?
b) What is the probability of choosing a consonant?
c) What is the probability of choosing one of the first 5 letters of the alphabet?

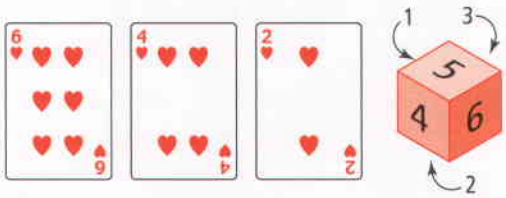
7. Su Yeon spins the following spinner and flips the coin.



a) Draw a tree diagram showing the possible outcomes.
b) List all the possible outcomes.
c) What is the probability that Su Yeon spins yellow and the coin lands heads up?
d) What is the probability that she spins red or blue and the coin lands tails up?

8. a) A coin is tossed. State the probability of heads, as a fraction and as a decimal.
b) Compare this value for the probability to an estimate based on repeatedly tossing a coin. How are the values related? How are they different?

9. Rebecca picks a card at random and rolls the number cube.



a) Draw a tree diagram.

b) List all the possible outcomes.

Extended Response

10. Jason orders a submarine sandwich for lunch every Friday. He has a choice of

- bread: white or whole wheat
- filler: turkey, salami, or cheese

a) How many different ways can Jason order his submarine? Use a tree diagram to organize your answer.

b) Is the probability of each submarine choice the same? Justify your reasoning.

11. Vladimir walked into class and was surprised to find a quiz at his desk. Having missed the last week of classes, Vladimir had no knowledge of the quiz content. There were four true-or-false questions that he had to guess at.

a) Based on Vladimir's lack of content knowledge, predict how many true-or-false answers he will get correct. Justify your answer.

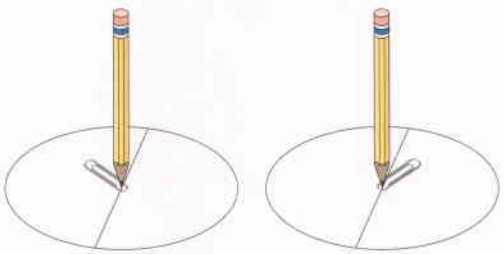
b) Using a spinner, simulate Vladimir's performance on the true-or-false questions. Record your results in a tally chart.

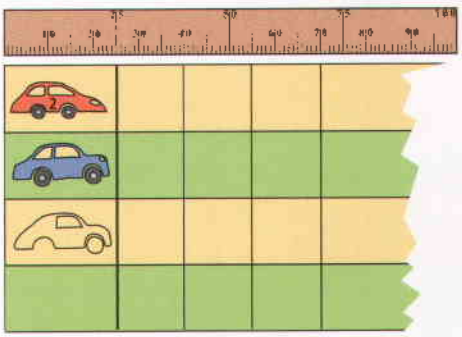
c) Estimate the probability of each score, based on your results.

d) Why might your simulation give different results than your prediction in part a)?

Chapter Problem Wrap-Up

Dana started making a car rally game. Can you help her finish it?





- The game should be fair for at least two people.
- Include a set of rules.

1. Show why your game is fair.

2. Test the game. Modify it if you need to.

Chapter 4

1. **Answer: A** (¾)
2. **Answer: D** (½)
3. **Answer: B** (number greater than 2)
4. **Answer: B** (about 7 times)
5. **Answer: C** (8 hits)
6. **(PROBABILITY letters)**
    a. P(I) = 2/11
    b. P (consonant)=7/11
    c. First 5 letters (A–E): only **A** (1) and **B** (2) → P = 3/11
7. **(Spinner + coin)**
    a. Tree: **Yellow/Red/Blue**, then **Heads/Tails** (6 outcomes)
    b. Outcomes: YH, YT, RH, RT, BH, BT
    c. P(yellow AND heads)=1/6
    d. P((red OR blue) AND tails = ⅚ x ½ = 5/12
8. **(Coin toss)**
    a. P(heads) = ½ = 0.5 = 50%
    b. Experimental results **should be close to 0.5**, but may differ because of randomness; **more tosses → closer to 0.5**.
9. **(Card + number cube)**
    a. a) Tree: pick **6/4/2**, then roll **1–6**
    b. b) 18 outcomes: (6,1) (6,2) (6,3) (6,4) (6,5) (6,6), (4,1) (4,2) (4,3) (4,4) (4,5) (4,6), (2,1) (2,2) (2,3) (2,4) (2,5) (2,6)
10. **(Submarine choices)**
    a. Bread: 2 choices (white, whole wheat) Filler: 3 choices (turkey, salami, cheese), Total ways: 2×3 = 6
    b. **Yes**, each combo is equally likely (if chosen fairly), so each has probability of ⅙
11. **(4 true/false guesses)**
    a. Predicted correct: **2** (half of 4)
    b. Simulation: flip a coin 4 times (Heads = correct, Tails = wrong), record scores
    c. Depends on simulation data
    d. Simulation can differ because it's **random** and depends on **how many trials** you run.