Practice 02
4.1 Sample Space and Probability
4.2 The Addition Rule
4.3 Multiplication Rule and Conditional Probability
4.4 Counting Rules
4.5 Probability and Counting Rules

1) A probability experiment is conducted. Which of these cannot be considered a probability outcome? 1) _____

A) 91% B) 1.58 C) 0.53 D) $\frac{2}{5}$

2) If two dice are rolled one time, find the probability of getting a sum of 6. 2) _____

A) $\frac{1}{6}$ B) $\frac{1}{12}$ C) $\frac{5}{36}$ D) $\frac{7}{36}$

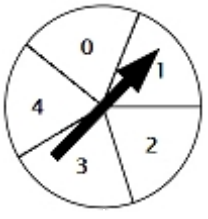
3) If a red suit is drawn from an ordinary deck of cards, what is the probability that the card is a diamond? 3) _____

A) $\frac{1}{5}$ B) $\frac{1}{2}$ C) $\frac{1}{3}$ D) $\frac{1}{4}$

4) The staff at a small company includes: 4 secretaries, 20 technicians, 4 engineers, 2 executives, and 50 factory workers. If a person is selected at random, what is the probability that he or she is a factory worker? 4) _____

A) $\frac{2}{5}$ B) $\frac{1}{8}$ C) $\frac{1}{4}$ D) $\frac{5}{8}$

5) A wheel spinner with five equally-sized spaces numbered 0 to 4 is spun twice. Find the sample space, and determine the probability of an odd number on the first spin and an even number on the second spin (*Note:* 0 is considered even.) 5) _____



A) $\frac{9}{25}$ B) $\frac{19}{25}$ C) $\frac{6}{25}$ D) $\frac{4}{25}$

6) If $P(A) = 0.25$, $P(B) = 0.51$, and $P(A \text{ or } B) = 0.76$, are A and B mutually exclusive? 6) _____

A) Yes B) No

7) If a single card is drawn from an ordinary deck of cards, what is the probability of drawing a jack, queen, king, or ace? 7) _____

A) $\frac{4}{13}$ B) $\frac{9}{26}$ C) $\frac{17}{52}$ D) $\frac{5}{13}$

8) A single card is drawn from a deck. Find the probability of selecting a heart or a 8. 8) _____

A) $\frac{17}{52}$ B) $\frac{4}{13}$ C) $\frac{2}{13}$ D) $\frac{1}{4}$

9) If $P(A) = 0.28$, $P(B) = 0.34$, and $P(A \text{ and } B) = 0.18$, find $P(A \text{ or } B)$. 9) _____

A) 0.09 B) 0.44 C) 0.18 D) 0.31

10) Let A and B be events with $P(A) = 0.5$, $P(B) = 0.9$, and $P(A \text{ and } B) = 0.25$. Are A and B independent? 10) _____

A) No B) Yes

11) A coin is tossed 3 times. Find the probability that all 3 tosses are tails. 11) _____

A) $\frac{1}{8}$ B) $\frac{1}{9}$ C) $\frac{1}{3}$ D) $\frac{1}{6}$

12) Let A and B be events with $P(A) = 0.2$, $P(B) = 0.8$, and $P(B|A) = 0.3$. Find $P(A \text{ and } B)$. 12) _____

A) 0.06 B) 0.67 C) 0.24 D) 0.16

13) An unfair coin has a probability 0.4 of landing heads. The coin is tossed four times. What is the probability that it lands heads at least once? 13) _____

A) 0.936 B) 0.8704 C) 0.9744 D) 0.25

14) In a second grade class containing 14 girls and 8 boys, 2 students are selected at random to give out the math papers. What is the probability that the second student chosen is a boy, given that the first one was a girl? 14) _____

A) $\frac{4}{11}$ B) $\frac{7}{11} \cdot \frac{8}{21}$ C) $\frac{8}{21}$ D) $\frac{7}{11} \cdot \frac{2}{3}$

15) Below are listed the numbers of engineers in various fields by sex. Choose one engineer at random. Find *P*(electrical|male). 15) _____

	Mechanical	**Electrical**	**Biomedical**
Male	8,750	4,167	6,329
Female	3,270	1,183	5,923

A) 0.114 B) 0.779 C) 0.141 D) 0.217

16) If the letters A, B, C, D, E, and F are to be used in a five-letter code, how many different codes are possible if repetitions are *not* permitted? 16) _____

A) 1,296 B) 720 C) 7,776 D) 625

17) A store manager wants to display 5 different brands of toothpaste in a row. How many ways can this be done? 17) _____

A) 120 B) 20 C) 24 D) 5

18) There are 4 different mathematics courses, 5 different science courses, and 3 different history courses. If a student must take one of each, how many different ways can this be done? 18) _____

A) 12 B) 15 C) 120 D) 60

19) How many different ways can a teacher select 3 students from a class of 15 students to each perform a different classroom task? 19) _____

A) 2,730 B) 455 C) 1,320 D) 45

20) A bookcase contains 2 statistics books and 5 biology books. If 2 books are chosen at random, the chance that both are statistics books is 20) _____

A) $\frac{1}{21}$ B) $\frac{10}{21}$ C) $\frac{10}{11}$ D) $\frac{1}{11}$

21) A committee consist of 7 women and 10 men. Three members are chosen as officers. What is the probability that all three officers are women? 21) _____

A) 0.0698 B) 0.0515 C) 0.01163 D) 0.1765

22) Find the probability of selecting 5 science books and 5 math books from 10 science books and 15 math books. The books are selected at random. 22) _____

A) ≈ 0.2315 B) ≈ 0.0001 C) ≈ 0.0010 D) ≈ 0.0009

Answer Key
Testname: STA2023_PRACTICE02B

1) B
2) C
3) B
4) D
5) C
6) A
7) A
8) B
9) B
10) A
11) A
12) A
13) B
14) C
15) D
16) B
17) A
18) D
19) A
20) A
21) B
22) A