

Exercise II - Probability

1. Describe the sample space for each of the following experiments.
 - a. The number of different words used in a sentence containing 24 words.
 - b. The air pressure (psi) in the right front tire of a car.
 - c. In a survey, 50 students are asked to respond “yes” or “no” to the question “Do you hold at least a part-time job while attending school?” Only the number answering “yes” will be recorded.
 - d. The time a TV satellite remains in operation.

2. A three-digit number is formed by arranging the digits 1, 2, and 5 in a random order.
 - a. List the sample space.
 - b. Find the probability of getting a number less than 400.
 - c. What is the probability that an even number is obtained?

3. Let the three events A, B, and C represents the cases that a randomly selected student is good at answering multiple choice, essay and True/False quations, respectively. The probabilities of the various intersections are given in the accompanying table (for instance, $P(AB\bar{C}) = 0.10$).

	B		\bar{B}	
	C	\bar{C}	C	\bar{C}
A	.05	.10	.08	.14
\bar{A}	.20	.15	.18	.10

- a. Draw a Venn diagram, identify the intersections, and mark the probabilities.
- b. Determine the probabilities, $P(AB)$ $P(A\bar{C})$ $P(C)$

- c. Fill in the accompanying probability table concerning the events A and B.

	B	\bar{B}
A		
\bar{A}		

- d. Calculate the probabilities of the following events.
 - i. Both B and C occur.
 - ii. Either B or C occurs.
 - iii. B occurs and C does not occur.
 - iv. Only one of the three events A, B, and C occurs.