Use the following information for question 1 and 2.
An experiment consists of tossing a coin 4 times.
1. List the event of getting two heads.
   a. $E = \{\{HHTT\}, \{TTHH\}\}$
   b. $E = \{\{TTTH\}, \{THHT\}, \{THHT\}, \{HTTT\}, \{HTHT\}, \{HHTT\}\}$
   c. $E = \{\{HTHT\}, \{THTH\}\}$
   d. $E = \{\{HHTT\}, \{HTTH\}, \{THTH\}\}$
   e. None of the above.

2. How many outcomes have only one tail?
   a. 4
   b. 3
   c. 8
   d. 1
   e. None of the above.

3. The choices for problem number 4 from the book are given below.
   a. $\{1, 2, 3, 4\}$
   b. $\{3, 4, 6, 7\}$
   c. $\{1, 2, 3, 4, 6, 7\}$
   d. $\{5, 8\}$
   e. None of the above.

4. The choices for problem number 6 from the book are given below.
   a. $\{2\}$
   b. $\{1, 2, 4\}$
   c. $\{3, 5, 6, 7, 8\}$
   d. $\{1, 2, 4, 5, 6, 8\}$
   e. None of the above.

Use the following information for question 5 and 6.
An experiment consists of selecting a letter at random from the letters in the word ANTARTICA and observing the outcomes.

5. What is an appropriate sample space for this experiment?
   a. $S = \{AAA, N, TT, R, I, C\}$
   b. $S = \{A, N, T, R, I, C\}$
   c. $S = \{ANTR\}$
   d. $S = \{T, R, I, A\}$
   e. None of the above.
6. Describe the event “the letter selected is not a vowel”
   a. \( E = \{A, I\} \)
   b. \( E = \{N, T, R, C\} \)
   c. \( E = \{NT, RC\} \)
   d. \( E = \{A, C\} \)
   e. None of the above.

Use the following information for question 7 and 8.
An experiment consists of tossing a pair of dice and observing the numbers that are on the uppermost surface of each die.

7. Describe the event of rolling at least one 3.
   a. \( E = \{(1,3), (2,3), (3,3), (4,3), (5,3), (6,3), (3,1), (3,2), (3,4), (3,5), (3,6)\} \)
   b. \( E = \{(1,3), (2,3), (4,3), (5,3), (6,3), (3,1), (3,2), (3,4), (3,5), (3,6)\} \)
   c. \( E = \{(3,3)\} \)
   d. \( E = \{(1,3), (2,3), (3,3), (4,3), (5,3), (6,3)\} \)
   e. None of the above.

8. Describe the event of rolling a sum of the numbers uppermost is 6.
   a. \( E = \{(1,5), (2,4), (3,3), (4,2), (5,1)\} \)
   b. \( E = \{(1,6), (2,6), (3,6), (4,6), (5,6), (6,6)\} \)
   c. \( E = \{(0,6), (1,5), (2,3), (3,3), (4,2), (5,1), (6,0)\} \)
   d. \( E = \{(1,6), (2,6), (3,6), (4,6), (5,6), (6,6), (6,1), (6,2), (6,3), (6,4), (6,5)\} \)
   e. None of the above.

9. The choices for problem number 30 from the book are given below.
   a. \( E \cap F \)
   b. \( (E \cap F^c) \cup (F \cap E^c) \)
   c. \( (E \cup F^c) \cap (F \cup E^c) \)
   d. \( E \cup F \)
   e. None of the above.

10. The choices for problem number 32 from the book are given below.
    a. \( (E \cup F)^c \cap G \)
    b. \( (E \cap F)^c \cup G \)
    c. \( (E^c \cup F^c) \cap G \)
    d. \( (E^c \cup F^c)^c \cap G \)
    e. None of the above.