1. Give an example and the definition of Independent Events.

2. Give an example and the definition of Dependent Events.

For questions 3 and 4, use the relationship between union and intersection to find the indicated probability.

3. Given that \( P(A \text{ or } B) = 0.7, P(A) = 0.4, \) and \( P(B) = 0.6 \), find \( P(A \text{ and } B) \).

4. Given that \( P(A \text{ and } B) = 0.2, P(A) = 0.3, \) and \( P(B) = 0.4 \), find \( P(A \text{ or } B) \).

5. One 6-sided die is rolled once.
   a. Find the probability of rolling a 1 or a 4.
   b. Find the probability of rolling an even number or a number less than 5.

6. At a children’s museum, children walk into the building for field trips.
   a. What is the probability that the first 10 children of the day to walk into the building are all girls?
   b. What is the probability of the 11\(^{th}\) child to walk into the building is a boy?
7. Two fair coins are tossed once.
   a. How many possible outcomes are there?
   b. Draw a tree-diagram of this situation and list the sample space.
   c. Find the probability of no heads turning up.
   d. Find the probability of exactly 1 head turning up.
   e. Find the probability of 2 heads turning up.

8. Three fair coins are tossed once.
   a. How many possible outcomes are there?
   b. Draw a tree-diagram of this situation and list the sample space.
   c. Find the probability of no heads turning up.
   d. Find the probability of exactly 1 head turning up.
   e. Find the probability of 3 heads turning up.
9. A couple wants to have 2 children.
   a. How many possible outcomes are there?
   b. Draw a tree-diagram of this situation and list the sample space.
   c. Find the probability of them having two girls.
   d. Find the probability of them having at least one boy.
   e. Find the probability of them having exactly one girl and one boy.

10. Two 6-sided dice are rolled once.
    a. How many possible outcomes are there?
    b. Draw a tree-diagram of this situation and list the sample space.
    c. Find the probability of rolling doubles.
    d. Find the probability of the sum of the two dice being 2.
    e. Find the probability of the sum of the two dice being 9.