1. A fair six-sided die is rolled twice. What is the probability that the sum of the two rolls is 5?

   A. $\frac{1}{18}$
   B. $\frac{1}{12}$
   C. $\frac{1}{9}$
   D. $\frac{1}{6}$
   E. $\frac{5}{36}$

2. In a large high school, 40% of students take a Music class, 30% of students take an Art class, and 10% of students take both Music and Art. If a student is selected at random, what is the probability that they take **at least one** of these classes?

   A. 0.10

   B. 0.50

   C. 0.60

   D. 0.70

   E. 0.80

3. Events A and B are independent. If $P(A) = 0.4$ and $P(B) = 0.5$, which of the following statements is true?

   A. $P(A \cap B) = 0$

   B. $P(A \cup B) = 0.9$

   C. $P(A|B) = 0.4$

   D. $P(A|B) = 0.5$

   E. $P(A \cap B) = 0.9$

4. A bag contains red, blue, and green marbles. The probability of drawing a red marble is 0.35 and the probability of drawing a blue marble is 0.25. Events "Red" and "Blue" are mutually exclusive. What is the probability of drawing a marble that is **neither** red nor blue?

   A. 0.10

   B. 0.40

   C. 0.50

   D. 0.60

   E. 0.875

5. Let $P(A) = 0.6$, $P(B) = 0.5$, and $P(A \cup B) = 0.8$. A Venn diagram is constructed to model these probabilities. What is the value of $P(A \cap B)$?

   A. 0.1

   B. 0.2

   C. 0.3

   D. 0.4

   E. 1.1

6. A medical test for a rare disease has a 95% sensitivity (it correctly identifies the disease 95% of the time given the person has it) and a 90% specificity (it correctly identifies healthy people 90% of the time). Suppose 2% of the population actually has the disease. If a person is chosen at random and tested, what is the probability that they test positive?

   A. 0.019

   B. 0.098

   C. 0.117

   D. 0.855

   E. 0.950

7. At a local coffee shop, 60% of customers order coffee, 30% order a pastry, and 20% order both coffee and a pastry. Given that a randomly selected customer ordered coffee, what is the probability that they also ordered a pastry?

   A. $\frac{1}{5}$
   B. $\frac{1}{3}$
   C. $\frac{1}{2}$
   D. $\frac{2}{3}$
   E. $\frac{5}{6}$

8. A basketball player makes free throws with a probability of 0.8. Assume each shot is independent. If the player shoots 3 free throws, what is the probability that she misses **at least one**?

   A. 0.2^3

   B. $1 - 0.8^3$

   C. $1 - 0.2^3$

   D. 0.8×0.2

   E. $3 \times 0.8^2 \times 0.2$