Probability

1. There are 3 red balls, 4 yellow balls and 5 black balls in a bag. 4 balls are drawn from the bag at one go. Which of the following is not possible?
   (A) All the 4 balls are yellow.
   (B) All the 4 balls are black.
   (C) All the 4 balls are red.
   (D) There will be 2 red balls and 2 yellow balls.
   (E) There will be 2 yellow balls and 2 black balls.　　　　　　　　　(　　)

2. There are 4 black balls and some red balls in a bag. The chance that a ball taken out is red is $\frac{3}{4}$. There are _____ red balls.
   (A) 7
   (B) 8
   (C) 9
   (D) 10
   (E) 12　　　　　　　　　　　　　　　　　　　　　　　　　　　　　（　　）

3. There are 3 red balls and 5 white balls in a bag. What is the chance that a ball drawn at random is a
   (a) white ball?
   (b) a red ball?

4. Two dice are rolled at the same time. What is the probability that the sum of the two numbers is odd?

Probability

1. There are only 3 red balls. It is impossible to have 4 red balls at one go.
   The answer is C.

2. $P\text{ (red)} = \dfrac{3}{4} = \dfrac{3 \times 4}{4 \times 4} = \dfrac{12}{16}$
   $16 - 4 = 12$ red balls
   The answer is E.

3. (a) $P\text{ (white ball)} = \dfrac{5}{8}$

   (b) $P\text{ (red ball)} = \dfrac{3}{8}$

4. The sample space is as shown in Example 3. There are 36 possible outcomes.
   The events that the sum is odd:
   (1, 2) (2, 1) (3, 2) (4, 1) (5, 2) (6, 1)
   (1, 4) (2, 3) (3, 4) (4, 3) (5, 4) (6, 3)
   (1, 6) (2, 5) (3, 6) (4, 5) (5, 6) (6, 5)
   $3 \times 5 = 15$
   $P\text{ (sum is odd)} = \dfrac{15}{36}$