1. A bag contains 5 red balls and 4 green ones. You draw three times without replacement. What is the probability all three are red?
   a) 3.6%    b) 14.5%    c) 8.9%    d) 11.9%    e) 6.4%

2. A bag contains 3 red balls and 4 green ones. You draw twice without replacement. What is the probability the first ball is red or the second ball is red?
   a) 71%    b) 63%    c) 74%    d) 82%    e) 68%

3. Roll a pair of dice. What is the conditional probability you got doubles, given that the sum is 10?
   a) 17%    b) 25%    c) 33%    d) 20%    e) 22%

4. You have a biased coin that lands heads 70% of the time and lands tails 30% of the time. You flip it 10 times. What is the probability you get exactly six heads?
   a) 8%    b) 17%    c) 12%    d) 20%    e) 15%

5. Suppose given independent events A and B with \( P(A) = .6 \) and \( P(B) = .4 \). What is \( P(A \cup B) \)?
   a) .92    b) .8    c) .76    d) .7    e) 1

6. Suppose given mutually exclusive events A and B with \( P(A) = .6 \) and \( P(B) = .4 \). What is \( P(A \cup B) \)?
   a) .92    b) .8    c) .76    d) .7    e) 1

7. Suppose given events A and B with \( P(A) = .6, P(B) = .4, \) and \( P(A|B) = .5 \). What is \( P(A \cup B) \)?
   a) .92    b) .8    c) .76    d) .7    e) 1

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Draw 25 times at random with replacement from a deck of cards.
8. What is the probability you draw the ace of spades at least once?
   a) 12%    b) 38%    c) 24%    d) 17%    e) 28%

9. What is the probability you draw the ace of spades at least twice?
   a) .04%    b) 12%    c) 2.4%    d) 5.2%    e) 8.3%
10. You set up a lottery game with your friends. An entry consists of a choice of 4 numbers from 1 to 15. You win if you match the 4 numbers in that range drawn at random by the game’s administrator. (The order of the numbers doesn’t matter.)

What is the probability of winning?

a) .073%  b) .024%  c) .095%  d) .033%  e) .052%

11. In a multiple choice test, you have a choice of five answers for each question. If you guess right, you get 5 points. If you guess wrong, you lose a point. Suppose the test has 25 questions, and a passing score is 30. What is the probability you can pass by guessing?

a) 2.56%  b) .89%  c) 1.79%  d) 3.26%  e) 4.56%

**Game:** Draw twice with replacement from the following box:

![Card Box]

If the sum is 4, you win $30. Otherwise you lose $1.

Suppose you play the game 900 times. The next three questions concern your net gain/loss.

12. What is the probability you lose at least $25?

a) 45%  b) 54%  c) 48%  d) 58%  e) 60%

13. What is the probability you lose at least $100?

a) 40%  b) 27\(\frac{1}{2}\)%  c) 32\(\frac{1}{2}\)%  d) 22\(\frac{1}{2}\)%  e) 36%

14. What is the probability you win at least $100?

a) 22\(\frac{1}{2}\)%  b) 18%  c) 12%  d) 14\(\frac{1}{2}\)%  e) 8%

15. Draw 260 times with replacement from a deck of cards. Use normal approximation to estimate the probability you get exactly 24 aces.

a) 9%  b) 6\(\frac{1}{2}\)%  c) 8%  d) 5\(\frac{1}{2}\)%  e) 7\(\frac{1}{2}\)%