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Indicate the answer choice that best completes the statement or answers the question.

	1	2	3	4	5	6	7	8	9	10
a										
b										
c										
d										
e										

1. Suppose you toss a fair coin 26 times, and each time you observe heads (i.e., 26 heads in a row). What is the probability of heads on your next toss?

a. 1
b. 0.962
c. 0.5
d. 0.038
e. 0

Coins do not have memory!

Computer voice recognition software is getting better. Some companies claim that their software correctly recognizes 98% of all words spoken by a trained user.

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2. The program recognizes words (or not) independently. To simulate the program's performance on 10 words, use two digits to simulate one word with 02 to 99 meaning "correct" and these random digits:

60970 70024 17868 29843 61790 90656 87964 18883

The number of words correct out of the 10 is

a. 10.
b. 9.
c. 8.
d. 2.
e. 1.

In a small Colombian village, 20% of the adults own a car, and 75% of the adults attend church regularly. Suppose that car ownership is independent of church attendance.

3. What is the probability that a randomly selected adult from this village owns a car and attends church regularly?

a. 0.95

CA = car CH = Church

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b. 0.55
c. 0.20
d. 0.15
e. 0.05

P(CA and CH)
= P(CA) × P(CH)
= 0.2 × 0.75 = 0.15

A basketball player makes 65% of her shots from the field during the season.

65 – 35

Line 104 52711 38889 93074 60227 40011 85848 48767 52573

00 ... 99

4. To simulate a shot, we could use a random digit with
   a. odd = made, even = missed. × 50 – 50
   b. 0 to 6 = made, 7 to 9 = missed. × 7 – 3 so 70 – 30
   c. 00 to 64 = made, 65 to 99 = missed. ← ! 65 – 35 !
   d. 00 to 65 = made, 66 to 99 = missed. < 66 – 34
   e. 00 to 70 = missed, 71 to 99 = made. × 71 – 29

Vince Carter was a career 80% free-throw shooter.

Line 102 73676 47150 99400 01927 27754 42648 82425 36290

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5. Using the correct assignment of random digits from Question 21, start at line 102 from the Random Number Table A to simulate 20 free throws shot by Vince Carter. Of the 20 free throws shot by Vince Carter, what percentage did he make?

a. 15%
b. 80%
c. 85%
d. 90%

6. Bunches of bananas arriving from their supplier reach a grocer with probability 0.12 of being too ripe to sell. To simulate the event that a single bunch of bananas arriving at the grocery is too ripe to sell, the produce manager could use two digits from a random generator with the following convention (choose the best answer):

a. 00, 01, 02, … , 09, 10, 11 → too ripe
12, 13, 14, … , 97, 98, 99 → acceptable

b. 01, 02, 03, … , 10, 11, 12 → too ripe
13, 14, 15, … , 98, 99, 00 → acceptable

c. 00, 01, 02, … , 85, 86, 87 → acceptable
88, 89, 90, … , 97, 98, 99 → too ripe

d. Any of the above

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e. None of the above

7. A researcher estimates that 30% of students at his college would be willing to pay for Google Fiber, the high-speed, superfast Internet access. The researcher chooses a student at random and asks that student if she would pay. To simulate the outcome, the researcher could use one random digit as follows:

a. 0, 1, 2, 3—meaning *Yes*.
b. 1, 2, 3—meaning *Yes*.
c. 0, 1, 2—meaning *Yes*.
d. Answers B and C are both correct.
e. None of these is correct.

Suppose flights at a large metropolitan airport are on-time 68% of the time and late 32% of the time. We want to use a table of random digits to simulate flight status (on-time or late), so we'll assign 01, 02, … , 68 to represent on-time flights and 69, 70, … , 99, 00 to represent late flights.

8. Use the information above and these random digits to simulate 20 flights at this airport:

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82734

71497 20467 47511 81606 55300 94383 14893

How many of the simulated flights were on-time?

a. 19
b. 15
c. 11
d. 10
e. 9

A basketball player makes 65% of her shots from the field during the season.

Line 104 52711 38889 93074 60227 40011 85848 48767 52573

9. What would happen if we simulated many, many shots?
   a. The result would be much higher than 65% since many more shots were taken.
   b. The result is likely to be very close to 65% since the simulated percentage should approach the true percentage for the season.
   c. Since this is a simulation, the result could fluctuate

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wildly around 65% with many shots.

d. The result would be exactly 65% with many, many shots.

Vince Carter was a career 80% free-throw shooter.

Line 102 73676 47150 99400 01927 27754 42648 82425 36290

10. On which attempt does Vince miss his first free throw?

a. First

b. 11th

c. 12th

d. Vince never misses.

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Answer Key

1. c

2. b

3. d

4. c

5. c

6. d

7. d

8. c

9. b

10. b