1986 FI4.3

若由整數 1 至 m 抽出一個數字，而每一數字被抽出之機會均等，被抽出數字為 78 之因數的或然率為 $\frac{p}{39}$，求 p 的值。

If a number is selected from the whole numbers 1 to 78, and if each number has an equal chance of being selected, the probability that the number is a factor of 78 is $\frac{p}{39}$, find the value of p.

1987 FI1.4

由 1 至 60 號卡片中隨意抽出一張。若得到 5 之倍數之概率為$\frac{1}{m}$，求 m 的值。

60 cards are marked from 1 to 60 and one is drawn at random. If the chance of it being a multiple of 5 is $\frac{1}{m}$, find the value of m.

1989 HI11

兩骰同擲，求兩數的和大於 7 的概率。

Two dice are thrown. Find the probability that the sum of the two numbers shown is greater than 7 .

1989 FG6.2

兩骰同擲，所得點數之和是 8 的概率是$\frac{k}{36}$。求 k 的值。

Two dice are thrown. The probability of getting a total of 8 is $\frac{k}{36}$.

Find the value of k.

1990 FI4.4

兩骰同擲，所得點數之和為 4 的概率是$\frac{1}{d}$。求 d 的值。

The probability of getting a sum of 4 in throwing two dice is $\frac{1}{d}$.

Find the value of d.

1991 FI4.4

兩骰同擲，得和為 7 或 9 之概率為$\frac{d}{18}$，求 d 的值。

Two dice are tossed. If the probability of getting a sum of 7 or 9 is $\frac{d}{18}$, find the value of d.

1992 HI3

由 0 至 9 之中隨機取一整數 a，已知方程 $x^2-ax+3=0$ 無實根的概率為 $\frac{p}{10}$，求 p 的值。

An integer a lying between 0 and 9 inclusive is randomly selected. It is known that the probability that the equation $x^2-ax+3=0$ has no real root is $\frac{p}{10}$, find the value of p.

1992 HI8

若 n 是從 1 至 100 中隨意選取的整數，且 5678^n 的個位數大於 3 的概率是 $\frac{3}{x}$，求 x 的值。

If n is an integer randomly selected from 1 to 100, and the probability that the unit digit of 5678^n is greater than 3 is $\frac{3}{x}$, find the value of x.

1993 HI4

從分別寫上 1 到 30 的三十張紙牌中隨意抽取一張。求點數是 2 或 5 的倍數的概率。

Thirty cards are marked from 1 to 30 and one is drawn at random.
Find the probability of getting a multiple of 2 or a multiple of 5 .

1993 FG9.3

擲一枚骰子兩次。設$\frac{x}{36}$為擲得點數總和為 7 或 8 的概率，求 x 的值。

A die is thrown 2 times. Let $\frac{x}{36}$ be the probability that the sum of numbers obtained is 7 or 8. Find the value of x.

1993 FG9.4

擲一枚骰子兩次。$\frac{y}{36}$為擲得兩數之差為 1 的概率，求 y 的值。

A die is thrown 2 times. Let $\frac{y}{36}$ be the probability that the difference of numbers obtained is 1. Find the value of y.

1995 HI4

隨意抽出一個三位數。求這個數是一完全平方數的機會。

A three-digit number is selected at random. Find the probability that the number selected is a perfect square.

1995 FI2.4

用 2 粒骰子擲得 7 點的概率是 w，求 w 的值。

The probability of throwing 2 dice to score 7 is w, find the value of w.

1995 FG10

在直角坐標平面上，x- 和 y- 坐標同為整數的點稱為格點。P 是起始時位於(0, 0)的移動點，它每一步必須沿坐標綫的其中一過個方向走 1 個單位的距離。

G10.1 若 P 走 1 步，它可到達 a 個格點，求 a 的值。

G10.2 若 P 可走不超過 2 步，它可到達 b 個格點，求 b 的值。

G10.3 若 P 走 3 步，它可到達 c 個格點，求 c 的值。

G10.4 若 P 走 9 步，它停在直綫 $x + y = 9$ 上的概率是 d，求 d 的值。

Lattice points are points on a rectangular coordinate plane having both x- and y-coordinates being integers. A moving point P is initially located at (0, 0). It moves 1 unit along the coordinate lines (in either directions) in a single step.

G10.1 If P moves 1 step then P can reach a different lattice points, find the value of a.

G10.2 If P moves not more than 2 steps then P can reach b different lattice points, find the value of b.

G10.3 If P moves 3 steps then P can reach c different lattice points, find the value of c.

G10.4 If d is the probability that P lies on the straight line $x + y = 9$ when P advances 9 steps, find the value of d.

1996 FI1.4

拋擲兩粒正常骰子，設取得點數總和是 6 的概率為 d，求 d 的值。

Two fair dice are thrown. Let d be the probability of getting the sum of scores to be 6. Find the value of d.

1997 HG10

投擲兩粒公平的骰子。求其總和為小於 5 及至少一粒骰子為'2'的機會率。

Two fair dice are thrown. Find the probability that the sum is less than 5 and at least one die is a '2'.

1997 FG1.4

從 16 張寫上 1 至 16 的咭紙中隨意抽出一張，若果抽出的號碼是一個完全平方數的概率為 $\frac{1}{d}$，求 d 之值。

16 cards are marked from 1 to 16 and one is drawn at random. If the chance of it being a perfect square number is $\frac{1}{d}$, find the value of d.

1999 FGS.1

若從正整數集中任意抽取一數 N，N^4 的個位數字為 1 的概率是 $\frac{P}{10}$，求 P 之值。

If a number N is chosen randomly from the set of positive integers, the probability of the unit digit of N^4 being unity is $\frac{P}{10}$, find the value of P.

2000 HI7

某一家庭有兩個孩子，已知其中一個孩子是女的，求該家庭的另一個孩子亦是女兒的概率是多少？(假設生男、生女的概率相等。)

In a family of 2 children, given that one of them is a girl, what is the probability of having another girl? (Assuming equal probabilities of boys and girls.)

2000 HG10

袋內有球 9 個，分別標上整數 1 到 9。甲從袋中隨機地抽出一個球並把它放回，乙再從同一袋中隨機地抽出一個球。把兩球上的整數相加，設 n 為該和的個位數字，P(n) 為 n 出現的概率。求 n 的值使得 P(n) 為最大。

There are nine balls in a pocket, each one having an integer label from 1 to 9. *A* draws a ball randomly from the pocket and puts it back, then *B* draws a ball randomly from the same pocket. Let n be the unit digit of the sum of numbers on the two balls drawn by *A* and *B*, and P(n) be the probability of the occurrence of n. Find the value of n such that P(n) is the maximum.

2002 HG7

將 20 個球放入 2 個袋中，每袋 10 個球，每袋的球分別標上數字 1 到 10，其中一個袋的球全為白色，另一個袋的球全為黑色。若從兩個袋中任意各取一個球，求白球上的數字較黑球上的數字為大的概率。

20 balls are put into 2 bags with 10 balls in each bag. The balls in each bag are labeled numbers 1 to 10, all balls in one bag are white and all balls in the other bag are black. If one ball is drawn from each of two bags, find the probability that the number of the white ball is greater than that of the black ball.

2010 HG5

從 1, 2, 3, 4 , 5, 6 中抽取三個號碼。求抽得的號碼中包含最少兩個連續數的概率。

Three numbers are drawn from 1, 2, 3, 4, 5, 6. Find the probability that the numbers drawn contain at least two consecutive numbers.

Answers

1986 FI4.3 4	1987 FI1.4 5	1989 HI11 $\frac{5}{12}$	1989 FG6.2 5	1990 FI4.4 12
1991 FI4.4 5	1992 HI3 4	1992 HI8 4	1993 HI4 $\frac{3}{5}$	1993 FG9.3 11
1993 FG9.4 10	1995 HI4 $\frac{11}{450}$	1995 FI2.4 $\frac{1}{6}$	1995FG10 4, 13, 16, $\frac{1}{10}$	1996 FI1.4 $\frac{5}{36}$
1997 HG10 $\frac{1}{12}$	1997 FG1.4 4	1999 FGS.1 4	2000 HI7 $\frac{1}{3}$	2000 HG10 0
2002 HG7 $\frac{9}{20}$	2010 HG5 0.8			