

**1989 HG4**

方程  $19x + 88y = 1988$  的其中一組正整數解是  $(100, 1)$ ，求另一組正整數解。  
One of the positive integral solutions of the equation  $19x + 88y = 1988$  is given by  $(100, 1)$ . Find another positive integral solution.

**1990 HG2**

某班有學生  $N$  人。

若將學生分為每 4 人一組，有 1 人餘下，

若將學生分為每 5 人一組，有 3 人餘下，

若將學生分為每 7 人一組，有 3 人餘下。求  $N$  的最小值。

There are  $N$  pupils in a class.

When they are divided into groups of 4, 1 pupil is left behind.

When they are divided into groups of 5, 3 pupils are left behind.

When they are divided into groups of 7, 3 pupils are left behind.

Find the least value of  $N$ .

**1991 HG3**

$\frac{a}{3}$ 、 $\frac{b}{4}$  及  $\frac{c}{6}$  是三個化至最簡的真分數，其中  $a$ 、 $b$  及  $c$  是正整數。如果

這三個分數的分子都加上  $c$ ，則所得三個分數的和是 6。求  $a + b + c$  的值。

$\frac{a}{3}$ ,  $\frac{b}{4}$  and  $\frac{c}{6}$  are three proper fractions in their simplest form, where  $a$ ,  $b$  and

$c$  are positive integers. If  $c$  is added to the numerator of each fraction, then the sum of the fractions formed will be equal to 6. Find the value of  $a + b + c$ .

**1991 HG8**

方程  $32a + 59b = 3259$  的其中一組正整數解為  $(x, y) = (100, 1)$ 。現知僅有另一組正整數  $(a, b)$  ( $a \neq 100, b \neq 1$ ) 使得  $32a + 59b = 3259$ ，求  $a$  的值。

One of the solutions of the equation  $32x + 59y = 3259$  in positive integers is given by  $(x, y) = (100, 1)$ . It is known that there is exactly one more pair of positive integers  $(a, b)$  ( $a \neq 100$  and  $b \neq 1$ ) such that  $32a + 59b = 3259$ .

Find the value of  $a$ .

**1991 FG7.3-4**

雞蛋每只 \$0.50，鴨蛋每只 \$0.60，鵝蛋每只 \$0.90。某人賣出  $x$  只雞蛋， $y$  只鴨蛋， $z$  只鵝蛋，共得 \$60。若  $x$ 、 $y$ 、 $z$  皆為正數，且  $x + y + z = 100$ ，及在  $x$ 、 $y$ 、 $z$  中有兩數相同，求  $x$  及  $y$  的值。

Chicken eggs cost \$0.50 each, duck eggs cost \$0.60 each and goose eggs cost \$0.90 each. A man sold  $x$  chicken eggs,  $y$  duck eggs,  $z$  goose eggs and received \$60. If  $x, y, z$  are all positive numbers with  $x + y + z = 100$  and two of the values  $x, y, z$  are equal, find the value of  $x$  and  $y$ .

**1992 HG4**

當正整數  $N$  除以 4、7、9 時，其餘數分別為 3、2、2。求  $N$  的最小值。

When a positive integer  $N$  is divided by 4, 7, 9, the remainders are 3, 2, 2 respectively. Find the least value of  $N$ .

**1995 HI7**

$x$ 、 $y$  為正整數，且  $3x + 5y = 123$ 。求  $|x - y|$  的最小值。

$x, y$  are positive integers and  $3x + 5y = 123$ . Find the least value of  $|x - y|$ .

**1995 HG8**

用一元、二元及五元硬幣，以湊合十七元，且每次均須使用各種硬幣，其方法有  $n$  種，求  $n$  的值。

The number of ways to pay a sum of \$17 by using \$1 coins, \$2 coins and \$5 coins is  $n$ . Find the value of  $n$ . (Assume that all types of coins must be used each time.)

**1996 HI5**

三個面值 \$0.1、\$3 和 \$5 的郵票共有 110 個，這組郵票共值 \$100。

求 \$3 郵票的數目。

A set of 110 stamps of the denominations of \$0.1, \$3, \$5 worth \$100 in total. Find the number of \$3 stamps in the set of stamps.

**1996 HG3**

當一疊面值 7020 元的十元紙幣被等分給  $x$  人時，餘下 650 元。把剩下的 650 元換成 5 元硬幣再等分給  $x$  人時，餘下 195 元。求  $x$  的值。

When a sum of \$7020, in the form of ten-dollar notes, is divided equally among  $x$  persons, \$650 remains. When this sum \$650 is changed to five-dollar coins and then divided equally among the  $x$  persons, \$195 remains.

Find the value of  $x$ .

**1996 FG10.4**

若正整數  $d$  除以 7，餘數是 1；除以 5 餘數是 2；除以 3 餘數是 2。

求  $d$  的最小可能值。

A positive integer  $d$  when divided by 7 will have 1 as its remainder; when divided by 5 will have 2 as its remainder and when divided by 3 will have 2 as its remainder. Find the least possible value of  $d$ .

**1997 HG4**

設  $x$  為一正整數。

若  $\frac{2}{3} \left( \frac{2}{3} \left( \frac{2}{3} (x-1) - 1 \right) - 1 \right)$  能被 3 整除，試求  $x$  之最小可能數值。

Let  $x$  be a positive integer. If  $\frac{2}{3} \left( \frac{2}{3} \left( \frac{2}{3} (x-1) - 1 \right) - 1 \right)$  is divisible by 3,

find the least possible value of  $x$ .

**1997 FG5.1**

若  $a$  是 5 的正倍數，且被 3 除時餘 1，求  $a$  之最小可能數值。

If  $a$  is a positive multiple of 5, which gives remainder 1 when divided by 3, find the smallest possible value of  $a$ .

**1999 FI4.2**

李先生有糖  $23 + b$  粒，若平均分給 10 人，則餘下 5 粒。若平均分給 7 人，則欠 3 粒。求  $b$  之最小值。

Mr. Lee has  $23 + b$  sweets. If he divides them equally among 10 persons, 5 sweets will be remained. If he divides them equally among 7 persons, 3 more sweets are needed. Find the minimum value of  $b$ .

**2004 FGS.4**

若直線  $5x + 2y - 100 = 0$  上有  $d$  個點，其  $x$  及  $y$  坐標的值都是正整數，求  $d$  的值。

If the line  $5x + 2y - 100 = 0$  has  $d$  points whose  $x$  and  $y$  coordinates are both positive integers, find the value of  $d$ .

**2005 FI4.2**

已知  $n$  及  $b$  是整數，並滿足方程  $29n + 42b = 1$ ，若  $5 < b < 10$ ，求  $b$  的值。

Given that  $n$  and  $b$  are integers satisfying the equation  $29n + 42b = 1$ .

If  $5 < b < 10$ , find the value  $b$ .

**2007 HG10**

已知整數  $x$  及  $y$  滿足  $3x + 5y = 1$ 。

若  $S = x - y$  及  $S > 2007$ ，求  $S$  可取的最小值。

Given that integers  $x$  and  $y$  satisfying the equation  $3x + 5y = 1$ .

If  $S = x - y$  and  $S > 2007$ , find the least possible value of  $S$ .

**2007 FG4.1**

有糖果  $x$  粒及  $120 \leq x \leq 150$ 。將糖果分成小堆，若每堆 5 粒，則餘 2 粒；若每堆 6 粒，則餘 5 粒。求  $x$  的值。

Let  $x$  be the number of candies satisfies the inequalities  $120 \leq x \leq 150$ . 2 candies will be remained if they are divided into groups of 5 candies each; 5 candies will be remained if they are divided into groups of 6 candies each. Find the value of  $x$ .

**2009 FI3.4**

已知某校學生人數是 7 的倍數且不少於 1000。若學生人數被 3、4 及 5 除後的餘數均是 1。設學生人數的最小可能值為  $q$ ，求  $q$  的值。

The total number of students in a school is a multiple of 7 and not less than 1000. Given that the same remainder 1 will be obtained when the number of students is divided by 3, 4 and 5. Let  $q$  be the least of the possible numbers of students in the school, find the value of  $q$ .

**Answers**

1989 HG4 (12, 20)	1990 HG2 73	1991 HG3 10	1991 HG8 41	1991 FG7.3-4 $x = 60, y = 20$
1992 HG4 191	1995 HI7 1	1995 HG8 8	1996 HI5 29	1996 HG3 91
1996 FG10.4 92	1997 HG4 25	1997 FG5.1 10	1999 FI4.2 2	2004 FGS.4 9
2005 FI4.2 9	2007 HG10 2011	2007 FG4.1 137	2009 FI3.4 1141	