1983 FI3.3

依右圖之分數，當計算至分子是 x^8 時，

c 為何值？

In the expression shown, what is the value of c when it is expanded to the term with x^8 as the numerator?

$$\cfrac{x^0}{2+\cfrac{x^1}{6+\cfrac{x^2}{10+\cfrac{x^3}{14+\cfrac{\cdots\cdots\cdots\cdots}{\cfrac{\cdots}{c+\cfrac{x^8}{\ddots}}}}}}}$$

1991 FI5.2

若算術級數 80, 130, 180, 230, 280, ⋯ 之第 n 項是 1080，求 n 的值。

If the n^{th} term of the arithmetic progression 80, 130, 180, 230, 280, ⋯ is 1080, find the value of n .

1994 FG8.1

由 1 至 121，有 a 個數是 3 或是 5 的倍數。求 a 的值。

From 1 to 121, there are a numbers which are multiplies of 3 or 5.

Find the value of a .

1994 FG8.2

由 1 至 121，有 b 個數不能被 5 或 7 整除。求 b 的值。

From 1 to 121, there are b numbers which are not divisible by 5 nor 7.

Find the value of b .

1997 HG8

已知 5 個算術級數中之最大值為最小值之 7 倍，及該 5 個數之平均值為 32。

求 5 個數中之最小值。

Five numbers are in arithmetic progression. If the largest number is 7 times the smallest one and the average of the five numbers is 32, find the smallest number.

1997 FG2.1

若數列 1, 6 + 2a , 10 + 5a , ⋯ 是一算術級數，求 a 的值。

If the sequence 1, 6 + 2a, 10 + 5a , ⋯ forms an A.P., find the value of a .

1998 HI6

已知 n 為一小於 1000 的正整數。若 n 能被 3 或 5 整除，

求 n 之可能數值有多少個。

Given that n is a positive integer which is less than 1000.

If n is divisible by 3 or 5, find the number of possible values of n .

1998 FI3.2

若數列 10，$\frac{37}{2}$ ，b 為一等差數列，求 b 的數值。

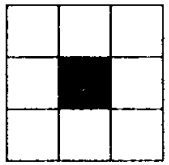
If 10, $\frac{37}{2}$, b is an arithmetic progression, find the value of b .

2010 FG2.4

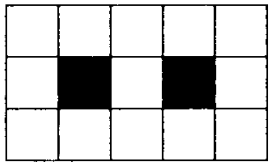
如圖所示為利用黑白兩種顏色湊成有規律的圖形。

求第 95 個圖形的白色格子的數目。

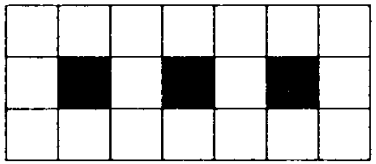
The figure shows the sequence of figures that are made of squares of white and black. Find the number of white squares in the 95th figure .



1st figure



2nd figure



3rd figure

2014 FI1.3

考慮兩組由正整數組成的有限數列：1, 3, 5, 7, ⋯ , 55 和 1, 6, 11, 16, ⋯,56。

求它們之間相同數字的數目 γ。

Given that 1, 3, 5, 7, ⋯ , 55 and 1, 6, 11, 16, ⋯ , 56 are two finite sequences of positive integers.

Determine γ, the numbers of positive integers common to both sequences.

2015 FI3.1

由 1 至 1000 的正整數中包括 1 及 1000，有 α 個不能被 5 或 7 整除。

求 α 的值。

Of the positive integers from 1 to 1000, including 1 and 1000, there are α of them that are not divisible by 5 or 7. Determine the value of α .

Answers

1983 FI3.3 30	1991 FI5.2 21	1994 FG8.1 56	1994 FG8.2 83	1997 HG8 8
1997 FG2.1 1	1998 HI6 466	1998 FI3.2 27	2010 FG2.4 478	2014 FI1.3 6
2015 FI3.1 686				