4 等差中項 Median of an arithmetic sequence

課本內容 p.20

▶ 等差中項

如果 a , b , c 三數成等差數列，則 b 稱為 a 與 c 的**等差中項**。

例如：-8 , 12 , 32 成等差數列，則 12 為 -8 與 32 的等差中項。

因此，若 a , b , c 三數成等差數列，則 $b-a=c-b$ ←—— 後項減前項等於公差

$$2b=a+c$$

$$b=\frac{a+c}{2}$$

等差中項公式

b 為 a 與 c 的等差中項，則 $2b=a+c$，即 $b=\frac{a+c}{2}$。

翻譯示例：

▶Median of an arithmetic sequence

If the three numbers a, b, and c form an arithmetic sequence,

then b is called the median of an arithmetic sequence of a and c.

For example, if -8, 12 and 32 form an arithmetic sequence,

then 12 is the median of an arithmetic sequence of -8 and 32.

Therefore, if the three numbers a, b, and c form an arithmetic sequence,

then $b-a=c-b$ ← the subsequent term minus the previous term is equal to common difference

$$2b=a+c$$

$$b=\frac{a+c}{2}$$

【Median of an arithmetic sequence formula】

If b is the median of an arithmetic sequence of a and c,

Then $2b=a+c$, means $b=\frac{a+c}{2}$.

等差中項的應用

已知三數成等差數列，且其等差中項為 15，求此三數的和。

解

設此三數為 $a, 15, b$，因為 $a, 15, b$ 三數成等差數列，所以 $a+b=2\times15=30$。

因此，三數的和 $a+15+b=a+b+15$

$$=30+15$$
$$=45$$

翻譯示例：

Application of the median of an arithmetic sequence

Given that three numbers form an arithmetic sequence,

and the median of the arithmetic sequence is 15.

Find the sum of these three numbers.

Solution

Suppose these three numbers are a, 15, and b.

Since the three numbers a, 15 and b are an arithmetic sequence, $a+b=2\times15=30$.

Therefore, the sum of three numbers $a+15+b=a+b+15$

$$=30+15$$
$$=45$$

參考資料來源

1. 110 國中數學 2 下翰林版課本

2. IB Maths SL Book Oxford

   Chapter 6 Patterns, sequences andseries

3. Holt McDougal Larson Algebra 2

   Chapter 7 Sequences and Series

☆老師們可以自己從中選擇以做出適合自己學生程度的學習單或是在課堂中適時補充這些英文。

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