# Measures of center

A <mark>measure of center</mark> is used to describe the middle of a data set.

What is a measure of center in statistics?  [Measures of central tendency](#)

A measure of central tendency (also referred to as measures of centre or central location) is a summary measure that attempts to describe a whole set of data with a single value that represents the middle or center of its distribution.

There are three main measures of central tendency:

- mode
- median
- mean

Each of these measures describes a different indication of the typical or central value in the distribution.

## 平均數、中位數與眾數

| 核心單字 | 英文 | 參考音標 |
|---|---|---|
| 平均數 | mean | /miːn/ |
| 中位數 | median | /ˈmiː.di.ən/ |
| 眾數 | mode | /moʊd/ |

## 1  平均數

將所有數據資料的總和除以總次數，稱為平均數（或算術平均數）。

<mark>Mean</mark> is the sum of the items in a set of data divided by the number of items in the set; also called average.

30、32、34、36 的平均數為 $\frac{30+32+34+36}{4} = 33$

For example: The mean of the data 30, 32, 34, 36 is $\frac{30+32+34+36}{4} = 33$.

## 2 中位數

(1) 中位數是一組由小到大排列的資料中，最中間位置的數值。

Median is the middle number or mean (average) of the two middle numbers in an ordered set of data.

(2) 中位數的求法如下：將 $n$ 筆資料由小到大依序排列，
Start by ordering the data.

若 $n$ 是奇數，則中位數是「第 $\dfrac{n+1}{2}$ 筆資料」。

If the data has $n$ numbers and $n$ is odd, median $= \dfrac{(n+1)}{2} th$ data.

將 7 筆資料 1、3、5、7、9、11、13 由小到大排列，
其中位數為「第 4 筆資料」，即為 7。
For example: Order the set of data 1, 3, 5, 7, 9, 11, and 13.

The median is the 4th number in the data set, 7.

若 $n$ 是偶數，則中位數是「第 $\dfrac{n}{2}$ 筆與第（$\dfrac{n}{2}$ +1）筆資料的平均」。

If the data has $n$ numbers and $n$ is even,

median $=$ Average of $\dfrac{n}{2} th$ and $(\dfrac{n}{2} + 1) th$ data

將 8 筆資料 2、4、6、8、10、12、14、16 由小到大排列，

其中位數為「第 4 筆與第 5 筆資料的平均」，即 $\dfrac{8+10}{2}$ ＝9。
For example: Order the set of data 2, 4, 6, 8, 10, 12, 14, 16.

The median is the average of the 4th and the 5th number in the data set, $\dfrac{8+10}{2}$ ＝9.

## 3 眾數

一組資料中，出現次數最多的資料，稱為這組資料的眾數。

Mode is the number or numbers that occur most frequently in a set of data; when all numbers occur with the same frequency, we say there is no mode.

有一組資料 30、32、32、32、34、36、38，
出現最多次的是 32，則其眾數為 32。
For example: There is a set of data 30, 32, 32, 32, 34, 36, 38.
The number occur most frequently is 32, so the mode is 32.

What is an example of no mode?
If no number in a set of numbers occurs more than once, that set has no mode:
Ex: 9, 16, 27, 37, 48, 48
Ex: 1, 1, 2, 2, 3, 3, 4, 4

**Practice**

1. **The prices for jackets that Jack found: $65, $79, $45, $68, $83, $79, and $82. Find the mean, median, and mode.**

2. **Weekly Forecast in Taipei, Taiwan**

| Day | Conditions | | |
|-----|------------|------------|---------|
| | | Temperature | Weather |
| Tue 7 Mar | ☀ | 26 / 13 °C | Sunny. |
| Wed 8 Mar | ☀ | 27 / 13 °C | Sunny. |
| Thu 9 Mar | ☀ | 26 / 14 °C | Sunny. |
| Fri 10 Mar | ☀ | 28 / 17 °C | Sunny. |
| Sat 11 Mar | ⛅ | 28 / 19 °C | Afternoon clouds. |
| Sun 12 Mar | ☁ | 29 / 17 °C | Cloudy. |
| Mon 13 Mar | 🌧 | 16 / 13 °C | Sprinkles early. Overcast. |

A. **What is the mean of the data with high temperatures?**

B. **What is the mean of the data with low temperatures?**

C. **What is the median of the data with high temperatures?**

D. **What is the median of the data with low temperatures?**

E. **What is the mode of the data with high temperatures?**

F. **What is the mode of the data with low temperatures?**

# 參考資料來源

1. 111 國中數學 1 下翰林版課本

2. Into Math Advanced1

3. Measures of central tendency

4. Taipei Extended Forecast with high and low temperatures

☆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。

製作者：康橋國際學校　陳怡伶