

Lesson Worksheet 6.3(I)

Objectives: To find weighted mean from a set of data.

Consider a set of data $x_1, x_2, x_3, \dots, x_n$ whose weights are $w_1, w_2, w_3, \dots, w_n$ respectively.
 考慮一組數據 $x_1, x_2, x_3, \dots, x_n$ ，它們的權分別是 $w_1, w_2, w_3, \dots, w_n$ 。

The weighted mean of the set of data is given by

$$\text{Weighted mean (加權平均數)} = \frac{w_1x_1 + w_2x_2 + w_3x_3 + \dots + w_nx_n}{w_1 + w_2 + w_3 + \dots + w_n}$$

1. There are five papers in an English examination. The following table shows Ronald's scores (in marks) and the *weight* of each paper in the examination. Find Ronald's *weighted mean score* in the examination.

	Score (marks)	Weight
Paper I	79	3
Paper II	70	4
Paper III	80	4
Paper IV	67	2
Paper V	83	2

Ronald's weighted mean score

$$= \frac{[79 \times (3) + 70 \times (4) + 80 \times (4) + 67 \times (2) + 83 \times (2)]}{[3 + 4 + (4) + (2) + (2)]}$$

$$= \frac{1137}{15}$$

$$= \underline{\underline{75.8}} \text{ marks}$$

2. There are four papers in an examination. The following table shows the scores got by Kelvin and the weight of each paper in the examination.

	Score (marks)	Weight
Paper 1	66	6
Paper 2	81	5
Paper 3	62	7
Paper 4	74	2

Find Kelvin's weighted mean score in the examination.

Kelvin's weighted mean score

$$= \frac{[66 \times (6) + 81 \times (5) + (62) \times (7) + (74) \times (2)]}{[(6) + (5) + (7) + (2)]}$$

$$= \frac{1383}{20}$$

$$= \underline{\underline{69.15}} \text{ marks}$$

weight(權)

weighted mean (加權平均數)

3. The following table shows Elizabeth's marks of various assessments in a course.

	Assignment	Quiz	Mid-Term Test	Examination
Score (Marks)	80	78	85	82
Weight	1	4	5	10

Find Elizabeth's weighted mean score in the course.

Elizabeth's weighted mean score

$$= \frac{[80 \times (1) + 78 \times (4) + (85) \times (5) + (82) \times (10)]}{[(1) + (4) + (5) + (10)]}$$

$$= \frac{1637}{20}$$

$$= \underline{\underline{81.85}} \text{ marks}$$

4. Larry enrolls a course. His scores and the weights of various assessments in the course are as follows:

	Homework	Project	Presentation	Examination
Score (marks)	77	81	65	79
Weight	15%	30%	30%	25%

Find Larry's weighted mean score of the course.

Larry's weighted mean score

$$= \frac{[(77) \times 15\% + (81) \times 30\% + (65) \times (30\%) + (79) \times (25\%)]}{[(15\%) + (30\%) + (30\%) + (25\%)]}$$

$$= \underline{\underline{75.1}} \text{ marks}$$

5. The stock price index of a city is the weighted mean of the price indices of four major stocks. The table below shows the price indices of these major stocks and their weights.

Major stock	Price index	Weight
LS Securities	140	25
Chero Corporation	122	16
Tahoe Property	89	27
Fanyan Oil	113	32

Find the stock price index of the city.

The stock price index

$$= \frac{[140 \times (25) + (122) \times (16) + (89) \times (27) + (113) \times (32)]}{[(25) + (16) + (27) + (32)]}$$

$$= \underline{\underline{114.71}} \text{ marks}$$

weight(權)

weighted mean (加權平均數)