Mean of Frequency Tables

คิดถึงครูอ้น(C9)
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Mean of Frequency Tables

Age of Dog	Frequency	
10	3	
11	4	
12	7	
13	6	
14	1	
TOTAL	21	

Starting point: Suppose we listed this data out with duplicated values. What would be the total age of the dogs aged 10?

$Mean =$

Exercises

Cost	Frequency
£1.50	1
£1.65	20
£1.70	21
£1.80	5
£2.00	2

Mean cost of beef burger:

=

Weight	Frequency
2kg	4
3kg	0
4kg	8
5kg	7
6kg	3

Mean weight of cats:

=

Mean of Grouped Data

TOP Maths IGCSE

A number of members of C9 are running in a race.
Their times were as follows

We don't know the individual times within each group. What time could we use for each person in the 35-40 group?

Time (secs)	Freq	
$35 \leq t < 40$	6	
$40 \leq t < 50$	12	
$50 \leq t < 70$	9	
TOTAL		

Estimate of mean:

Why is it an estimate?

Age of rock (years)	Frequency	
$0 \leq a < 100$	40	
$100 \leq a < 400$	24	
$400 \leq a < 1000$	5	

$Estimate\ of\ mean =$

There are 25 people in a room who do 10 IGCSEs and 5 people who do 12. What is the average number of IGCSEs taken?

Combining Means

We can use a similar approach when combining means.

Class A, with 30 students, got an average of 60 marks in a maths test.
Class B, with 25 students, got an average of 75 marks in the same maths test.
What was the average mark across all students?

Problem 1

A teacher asked fifty pupils in Year 9:

> How much time did you spend on homework last night?

Results:

Time spent on homework (minutes)	Frequency
$0 \leq$ time ≤ 30	6
$30 <$ time ≤ 60	14
$60 <$ time ≤ 90	21
$90 <$ time ≤ 120	9
Total	**50**

Find an estimate of the mean time spent on homework.

Problem 2

62 pupils completed a couch to 5k programme, which ended with everyone completing a 5 km run. Their times were recorded in the frequency table below.

Time (t minutes)	Frequency
$20 \leq t < 26$	3
$26 \leq t < 29$	9
$29 \leq t < 33$	8
$33 \leq t < 39$	15
$39 \leq t < 44$	23
$44 \leq t < 49$	4

Find an estimate for the mean time taken by the 62 pupils to complete the 5 km.

..... minutes

Problem 3

The masses of 300 stones found on a beach are shown in the table.

Mass (g)	Number of stones		
$10 < m \leqslant 20$	33		
$20 < m \leqslant 30$	88		
$30 < m \leqslant 40$	57		
$40 < m \leqslant 50$	52		
$50 < m \leqslant 60$	43		
$60 < m \leqslant 70$	17		
$70 < m \leqslant 80$	10		

Calculate an estimate of the mean mass of the stones.

..... g

Problem 4

The table below shows the weights of fish caught in a competition.

Weight (g)	Frequency
$0 < w \leq 150$	10
$150 < w \leq 300$	25
$300 < w \leq 450$	18
$450 < w \leq 600$	12
$600 < w \leq 750$	10
$750 < w \leq 900$	5

Calculate an estimate for the mean weight of a fish caught in this competition.

..... g

Problem 5

The table shows information about the number of days absent last year by students in class $2A$ at a certain school.

Number of days absent	0	1	2 to 4	5 to 10	11 to 20	21 to 30	More than 30
Number of students	7	12	9	1	0	1	0

Calculate an estimate of the mean for these data.

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Problem 6

Peter, John and Matthew are three brothers.

Peter is 10 years old.

John is x years old.

Matthew is a year younger than twice John's age.

The mean of the ages is 7 years old.

Work out John's age.

Problem 7

Each player in a group of 15 players scored either 2 or x goals.

Number of goals	Frequency
2	10
x	5

The mean number of goals per player was 3.

Calculate x .

$x =$ .....

Problem 8

In a class there are 11 boys and 19 girls.

The mean weight of all 30 children is 32.85 kg.

The mean weight of the 11 boys is 31.9 kg.

Work out the mean weight of the 19 girls.

..... kg

Problem 9

There are 12 boys and 8 girls in a class.
The boys and the girls have some coins.

The mean number of coins that the boys have is 5.5
The girls have a total of 18 coins.

Work out the mean number of coins the 20 children have.

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Problem 10

The students in Class A and in Class B take the same examination.

There are 28 students in Class A and 32 students in Class B.
The mean score for all the students in both classes is 72.6
The mean score for the students in Class A is 75

Work out the mean score for the students in Class B.

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Problem 11

There are 18 packets of sweets and 12 boxes of sweets in a carton.

The mean number of sweets in all the 30 packets and boxes is 14.

The mean number of sweets in the 18 packets is 10.

Work out the mean number of sweets in the boxes.

..... sweets