

Name _____

Date _____

16.2 The mean — worksheet

Calculate the mean of a data set, find it from a frequency table, and use it to work backwards to a total or a missing value. · 64 questions · Show your working.

Remember

- **Mean = total ÷ how many.**
- It shares the total out equally: what everyone would have if they all had the same.
- Rearranged: **total = mean × how many.** That step unlocks most mean problems.
- The mean need **not** be one of the values — 1.6 pets is a perfectly good mean.
- It must lie **between the smallest and the largest** value.
- From a **frequency table**: multiply each value by its frequency, add those, then divide by the total frequency.
- To find a missing value: work out the total the mean demands, then subtract what you already have.
- The mean uses **every** value, so one extreme reading moves it a long way.
- That sensitivity is its weakness, and the subject of the next section.

A · Fluency — Means, totals, and back again.

1 Find the **mean** of this set of data:
4, 6, 8, 10, 12

2 Find the **mean** of this set of data:
3, 7, 5, 9, 11

3 Find the **mean** of this set of data:
12, 15, 18, 21, 24

4 Find the **mean** of this set of data:
2, 4, 4, 6, 9

5 Find the **mean** of this set of data:
10, 20, 30, 40

6 Find the **mean** of this set of data:
7, 7, 8, 10

7 Find the **mean** of this set of data:
15, 25, 35, 45, 55

8 Find the **mean** of this set of data:
6, 9, 12, 15, 18

9 Find the **mean** of this set of data:
1, 3, 5, 7, 9, 11

10 Find the **mean** of this set of data:
20, 24, 28, 32

11 What is the **total** of this set of data?
4, 6, 8, 10, 12

12 What is the **total** of this set of data?
3, 7, 5, 9, 11

13 What is the **total** of this set of data?
12, 15, 18, 21, 24

14 What is the **total** of this set of data?
2, 4, 4, 6, 9

15 What is the **total** of this set of data?
10, 20, 30, 40

16 What is the **total** of this set of data?
7, 7, 8, 10

17 What is the **total** of this set of data?
15, 25, 35, 45, 55

18 What is the **total** of this set of data?
6, 9, 12, 15, 18

19 What is the **total** of this set of data?
1, 3, 5, 7, 9, 11

20 What is the **total** of this set of data?
20, 24, 28, 32

21 5 numbers have a mean of 7. What is their total?

22 4 numbers have a mean of 12. What is their total?

23 6 numbers have a mean of 20. What is their total?

24 8 numbers have a mean of 9. What is their total?

25 10 numbers have a mean of 15. What is their total?

26 12 numbers have a mean of 6. What is their total?

27 4 numbers have a mean of 25. What is their total?

28 5 numbers have a mean of 30. What is their total?

29 5 numbers have a total of 60. What is their mean?

30 7 numbers have a total of 84. What is their mean?

31 8 numbers have a total of 120. What is their mean?

32 9 numbers have a total of 45. What is their mean?

33 12 numbers have a total of 144. What is their mean?

34 6 numbers have a total of 72. What is their mean?

35 How many people were asked?

Number of pets	Frequency
0	4
1	7
2	5
3	4
Total	20

36 How many pets are there altogether?

Number of pets	Frequency
0	4
1	7
2	5
3	4
Total	20

- 37** What is the mean number of pets? Give the answer to two decimal places.

Number of pets	Frequency
0	4
1	7
2	5
3	4
Total	20

- 38** What is the modal number of pets?

Number of pets	Frequency
0	4
1	7
2	5
3	4
Total	20

- 39** What is the range of the number of pets?

Number of pets	Frequency
0	4
1	7
2	5
3	4
Total	20

B · Reasoning — What the mean is doing, and what it cannot do.

- 40** How do you find the mean?
- ☐ The middle value
 - ☐ The most common value
 - ☐ Add them all up, then divide by how many there are
 - ☐ Largest minus smallest
- 41** What does the mean really do?
- ☐ Picks the middle
 - ☐ Shares the total out equally
 - ☐ Counts the most common
 - ☐ Measures spread
- 42** Must the mean be one of the values in the data?
- ☐ Yes
 - ☐ No

- 43** Given the mean and how many values there are, the total is ...
- ☐ mean $\div$ how many
 - ☐ mean $\times$ how many
 - ☐ mean + how many
 - ☐ impossible to find
- 44** One very large value is added to a set. Which changes most?
- ☐ the mode
 - ☐ the median
 - ☐ the mean
 - ☐ nothing changes
- 45** Can the mean be larger than every value in the data?
- ☐ Yes
 - ☐ No
- 46** The mean of 5 numbers is 8. One of them changes from 4 to 9. The new mean is ...
- ☐ 8
 - ☐ 8.5
 - ☐ 9
 - ☐ 13
- 47** Why is the mean called an average?
- ☐ It is in the middle of the list
 - ☐ It is a single value that stands for the whole set
 - ☐ It is the most common
 - ☐ It is the largest
- 48** To find the mean from a frequency table you ...
- ☐ add the frequencies and divide by how many rows
 - ☐ multiply each value by its frequency, add those, then divide by the total frequency
 - ☐ add the values and divide by the number of rows
 - ☐ take the largest frequency
- 49** Is the mean always a sensible average to quote?
- ☐ Yes
 - ☐ No

C · Challenge — Missing values, and means that change.

- 50** Five numbers have a mean of 12. Four of them are 8, 10, 14 and 16. What is the fifth?

- 51** Six numbers have a mean of 9. Five of them are 4, 7, 9, 12 and 13. What is the sixth?

- 52** The mean of 4 numbers is 15. A fifth number, 25, is added. What is the new mean?

- 53** The mean of 8 numbers is 11. Two numbers, both 20, are added. What is the new mean?

54 A class of 20 has a mean test score of 14. A learner who scored 6 is removed. What is the new mean, to two decimal places?

55 The mean of 3, 8, x and 13 is 9. What is x ?

56 Ten numbers have a mean of 6. Each one is doubled. What is the new mean?

D · Word problems — Scores, goals, takings and speeds.

57 Five test scores are 12, 15, 18, 11 and 14. What is the mean score?

58 A footballer scores 2, 0, 1, 3 and 4 goals in five games. What is the mean number of goals per game?

59 Six parcels have a mean mass of 4 kg. What is their total mass, in kilograms?

60 A shop takes \$340, \$280, \$410 and \$370 over four days. What is the mean daily takings, in dollars?

61 The mean height of 12 learners is 145 cm. What is their total height, in centimetres?

62 A car travels 240 km in 4 hours. What is its mean speed, in kilometres per hour?

63 Seven people have a mean age of 30. An eighth person aged 22 joins them. What is the new mean age?

64 A factory's daily output over 5 days had a mean of 480 items. On the sixth day it made 540. What is the mean over the six days?
