

Name _____

Date _____

16.1 Mode, median and range — worksheet

Find the mode, the median and the range of a set of data, and know what each of them describes. · 61 questions · Show your working.

Remember

- The **mode** is the value that occurs **most often**.
- The **median** is the **middle** value — but only once the data is **in order**.
- With an **even** number of values, the median is halfway between the middle two.
- The **range** is **largest – smallest**. It measures **spread**, not average.
- With n values in order, the median is in position $(n + 1) \div 2$.
- The mode must be one of the values; the median need not be.
- A set can have **no mode**, and saying so is a proper answer.
- The mode is the only average that works for words — a modal colour makes sense, a mean colour does not.
- The range sees only the two ends, so two very different sets can share one.

A · Fluency — Mode, median and range from a list.

- 1 Find the **mode** of this set of data:
3, 7, 7, 2, 9, 5, 7

- 2 Find the **mode** of this set of data:
12, 15, 11, 15, 18, 15, 20

- 3 Find the **mode** of this set of data:
4, 8, 6, 8, 10, 2, 8

- 4 Find the **mode** of this set of data:
21, 25, 23, 25, 30, 25, 19

- 5 Find the **mode** of this set of data:
1, 5, 3, 5, 9, 5, 7

- 6 Find the **mode** of this set of data:
14, 10, 14, 18, 14, 6, 22

- 7 Find the **mode** of this set of data:
33, 37, 35, 37, 40, 37, 30

- 8 Find the **mode** of this set of data:

8, 6, 8, 12, 8, 4, 10

- 9 Find the **median** of this set of data:

3, 7, 7, 2, 9, 5, 7

- 10 Find the **median** of this set of data:

12, 15, 11, 15, 18, 15, 20

- 11 Find the **median** of this set of data:

4, 8, 6, 8, 10, 2, 8

- 12 Find the **median** of this set of data:

21, 25, 23, 25, 30, 25, 19

- 13 Find the **median** of this set of data:

1, 5, 3, 5, 9, 5, 7

- 14 Find the **median** of this set of data:

14, 10, 14, 18, 14, 6, 22

- 15 Find the **median** of this set of data:

33, 37, 35, 37, 40, 37, 30

- 16 Find the **median** of this set of data:

8, 6, 8, 12, 8, 4, 10

- 17 Find the **median** of this set of data:

4, 6, 9, 11, 6, 8

- 18 Find the **median** of this set of data:

10, 14, 12, 18, 14, 16

- 19 Find the **median** of this set of data:

2, 5, 7, 9, 5, 8

- 20 Find the **median** of this set of data:

20, 26, 22, 28, 26, 24

- 21 Find the **median** of this set of data:

15, 19, 17, 21, 19, 23

- 22 Find the **median** of this set of data:

30, 34, 32, 38, 34, 36

- 23 Find the **range** of this set of data:

3, 7, 7, 2, 9, 5, 7

24 Find the **range** of this set of data:
12, 15, 11, 15, 18, 15, 20

25 Find the **range** of this set of data:
4, 8, 6, 8, 10, 2, 8

26 Find the **range** of this set of data:
21, 25, 23, 25, 30, 25, 19

27 Find the **range** of this set of data:
1, 5, 3, 5, 9, 5, 7

28 Find the **range** of this set of data:
14, 10, 14, 18, 14, 6, 22

29 Find the **range** of this set of data:
33, 37, 35, 37, 40, 37, 30

30 Find the **range** of this set of data:
8, 6, 8, 12, 8, 4, 10

31 Find the **range** of this set of data:
4, 6, 9, 11, 6, 8

32 Find the **range** of this set of data:
10, 14, 12, 18, 14, 16

33 Find the **range** of this set of data:
2, 5, 7, 9, 5, 8

34 Find the **range** of this set of data:
20, 26, 22, 28, 26, 24

35 Find the **range** of this set of data:
15, 19, 17, 21, 19, 23

36 Find the **range** of this set of data:
30, 34, 32, 38, 34, 36

B · Reasoning — What each one measures, and where the traps are.

- 37 What does the **mode** tell you?
- ☐ The middle value
 - ☐ The most common value
 - ☐ The total
 - ☐ The spread

- 38** What does the **median** tell you?
- ☐ The most common value
 - ☐ The middle value when they are in order
 - ☐ The total $\div$ how many
 - ☐ The largest minus the smallest
- 39** What does the **range** tell you?
- ☐ An average
 - ☐ How spread out the data is
 - ☐ The most common value
 - ☐ The middle
- 40** Must the median be one of the values in the data?
- ☐ Yes
 - ☐ No
- 41** Must the mode be one of the values in the data?
- ☐ Yes
 - ☐ No
- 42** Why must you put the data in order before finding the median?
- ☐ It looks tidier
 - ☐ Because the median is defined by position, and position only means something once it is sorted
 - ☐ It is not necessary
 - ☐ To find the mode
- 43** A set has 9 values. Which one is the median?
- ☐ the 4th
 - ☐ the 5th
 - ☐ the 4th and 5th
 - ☐ the 9th
- 44** A set has 10 values. Where is the median?
- ☐ the 5th
 - ☐ the 6th
 - ☐ halfway between the 5th and the 6th
 - ☐ there is none
- 45** A data set has no value repeated. What is its mode?
- ☐ The first value
 - ☐ The largest
 - ☐ There is no mode
 - ☐ The median
- 46** Can two different data sets have the same range?
- ☐ Yes
 - ☐ No

C · Challenge — Working backwards to a missing value.

- 47 The mode of 4, 7, x , 7, 2 is 7 and the range is 6. If x is the largest of the five values, what is x ?

- 48 Five numbers have a median of 12. Four of them are 8, 10, 15 and 20. What is the fifth?

- 49 Seven numbers are 5, 9, 4, 9, 12, 3, 9. What is the difference between the mode and the median?

- 50 A set of six numbers has median 11. Five of them are 6, 8, 10, 14 and 16. What is the sixth, if it lies between 10 and 14?

- 51 The range of a set is 15 and the largest value is 42. What is the smallest?

- 52 Nine numbers are in order. Which position is the median?

- 53 Four numbers have a median of 7. Three of them are 4, 6 and 12. What is the fourth?

D · Word problems — Tests, temperatures, shoes and houses.

- 54 Seven learners score 6, 8, 9, 8, 10, 7, 8 in a test. What is the modal score?

- 55 Seven learners score 6, 8, 9, 8, 10, 7, 8. What is the median score?

- 56 Daily temperatures were 14, 17, 12, 19, 15, 21, 16 °C. What was the range, in degrees?

- 57 Shoe sizes sold in a day were 6, 7, 7, 8, 7, 9, 6. Which size should the shop restock most of?

- 58 Six houses on a street sold for, in thousands: 180, 200, 210, 220, 240, 950. What is the range, in thousands?

- 59 Six houses sold for, in thousands: 180, 200, 210, 220, 240, 950. What is the median, in thousands?

- 60 A bus arrives 2, 5, 1, 8, 2, 3, 2 minutes late over a week. What is the modal lateness, in minutes?

- 61 Rainfall over five days was 4, 0, 12, 3, 6 mm. What is the range, in millimetres?
