Year 8 Statistics – Mixed Practice

ANSWER KEY

HappyKids.fit

Answers and worked solutions · 30 questions

A. Mixed practice (mixed order)

1. **155°**

Each student is 360 ÷ 72 = 5°

31 × 5 = 155°

2. **range 43, mode 34**

There are 15 values, already in order

range: 43; mode: 34

3. **150°**

Each student is 360 ÷ 36 = 10°

15 × 10 = 150°

4. **median 31, range 39**

There are 15 values, already in order

median: 31; range: 39

5. **mean 3.56, median 3, mode 5**

Total = 1 × 4 + 2 × 1 + 3 × 8 + 4 × 1 + 5 × 11 = 89; mean = 89 ÷ 25 = 3.56

Median: the 12th and 13th values; mode: the highest frequency

6. **28 people**

140 ÷ 360 = 7/18 of the people

7/18 × 72 = 28

7. **mean 3.825, median 3.5, mode 2**

Total = 2 × 11 + 3 × 9 + 4 × 4 + 5 × 8 + 6 × 8 = 153; mean = 153 ÷ 40 = 3.825

Median: the 20th and 21th values; mode: the highest frequency

8. **range 36, mode 47**

There are 13 values, already in order

range: 36; mode: 47

9. **105°**

Each student is 360 ÷ 24 = 15°

7 × 15 = 105°

10. **mean 2.05, median 1.5, mode 1**

Total = 0 × 3 + 1 × 7 + 2 × 2 + 3 × 2 + 4 × 6 = 41; mean = 41 ÷ 20 = 2.05

Median: the 10th and 11th values; mode: the highest frequency

11. **Each value must be multiplied by its frequency: total 42 goals in 15 matches, so the mean is 2.8.**

Error: the frequencies were ignored

Total: 42; number of matches: 15

Mean = 2.8

12. median 30, range 43

There are 15 values, already in order
median: 30; range: 43

13. 24°

Each student is 360 ÷ 60 = 6°
4 × 6 = 24°

14. range 44, mode 45

There are 13 values, already in order
range: 44; mode: 45

15. a time series graph (line graph): it shows changes over time and any seasonal pattern.

Choose: a time series graph (line graph)
Because it shows changes over time and any seasonal pattern

16. Yes. The range uses the largest and smallest values, so one extreme value changes it.

Try an example
The range uses the largest and smallest values, so one extreme value changes it.
Decide

17. mean 4.4, median 5, mode 5

Total = 2 × 1 + 3 × 5 + 4 × 1 + 5 × 11 + 6 × 2 = 88; mean = 88 ÷ 20 = 4.4
Median: the 10th and 11th values; mode: the highest frequency

18. 120°

Each student is 360 ÷ 36 = 10°
12 × 10 = 120°

19. The range uses the actual values, not the stems: 44 − 11 = 33.

Error: only the stems were used
Largest 44, smallest 11
Range = 33

20. positive correlation: as hours of practice increase, points scored tends to increase.

Look at how the second value changes as the first increases
positive correlation

21. Mar and Apr (by 20 hundred); the overall trend is increasing

Changes: Jan–Feb −10, Feb–Mar −5, Mar–Apr +20, Apr–May +15, May–Jun +10
Largest rise: Mar to Apr
From 20 to 50: increasing

22. Player A has the higher mean (72 against 62), so it scored more on average; player A has the smaller range (26 against 35), so its scores were more consistent.

Means: 432 ÷ 6 = 72; 372 ÷ 6 = 62
Ranges: 26 and 35
Compare an average (centrality) and the range (spread), in context

23. Yes. Each leaf with its stem is one data value, e.g. 2 | 3 is 23, so no data is lost.

Try an example
Each leaf with its stem is one data value, e.g. 2 | 3 is 23, so no data is lost.
Decide

24. median 42, range 45

There are 12 values, already in order
median: 42; range: 45

25. a stem-and-leaf diagram: it keeps the raw data while showing the distribution.

Choose: a stem-and-leaf diagram
Because it keeps the raw data while showing the distribution

26. Advantage: easy to carry out and spread across the whole list. Disadvantage: it could be biased if the list has a repeating pattern.

Think about bias and how representative the sample is
Advantage: easy to carry out and spread across the whole list
Disadvantage: it could be biased if the list has a repeating pattern

27. 15 people

$90 \div 360 = 1/4$ of the people
$1/4 \times 60 = 15$

28. no correlation: there is no clear pattern.

Look at how the second value changes as the first increases
no correlation

29. The range uses the actual values, not the stems: 48 – 15 = 33.

Error: only the stems were used
Largest 48, smallest 15
Range = 33

30. mean 1.925, median 1.5, mode 1

Total = $0 \times 8 + 1 \times 12 + 2 \times 3 + 3 \times 9 + 4 \times 8 = 77$; mean = $77 \div 40 = 1.925$
Median: the 20th and 21th values; mode: the highest frequency