

Mathematics Gr.8 Test 7

Statistics and probability

60 minutes

MEMO

50 marks

Question 1: [17]

The number of learners per school in a certain district is summarised as follow:

378 502 866 450 355 465 519
556 880 519 684 658 458

1.1 Is this data discrete or continuous?

Discrete – learners were counted ✓

1.2 Draw a stem-and-leaf plot of the mentioned data above, and also arrange the data.

Stem: ✓	Leaf: ✓ ✓	Frequency: ✓
3	55 78	2
4	50 58 65	3
5	02 19 19 56	4
6	58 84	2
7		
8	66 80	2

1.3 Determine the mode. **519** ✓

1.4 Determine the median.

There are 13 entries.

The median will be the 7th entry. ✓

∴ Median = 519 ✓

1.5 Determine the average number of learners per school in this district.

Round off to the nearest integer.

$$\text{Average} = \frac{378+502+866+450+355+465+519+556+880+519+684+658+458}{13}$$

$$\text{Average} = \frac{7\,290}{13} \quad \checkmark$$

$$\text{Average} = 560,769 \dots \quad \checkmark$$

$$\text{Average} \approx 561 \quad \checkmark$$

1.6 Compare your answers in 1.3, 1.4 and 1.5. Which of the three measures of central tendency would be the best to use? Motivate your answer.

Even though the mode and median are the same, the mean will always be a good indicator of central tendency. $\checkmark \checkmark$

1.7 Calculate the percentage of outliers present here.

Round off correctly to one decimal.

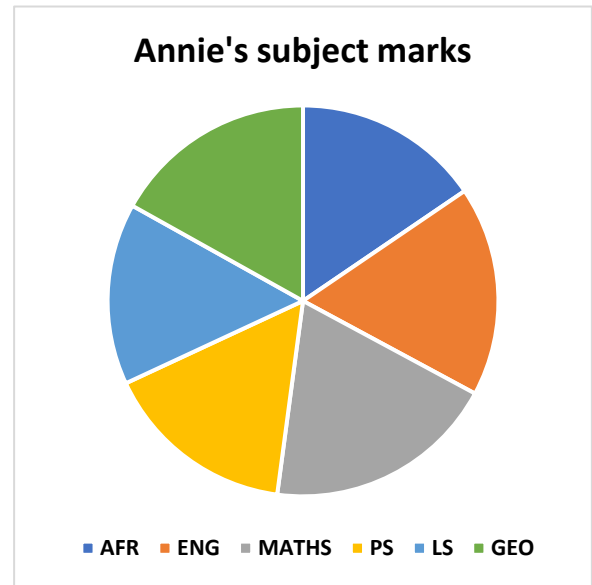
Outliers will be 866 and 880. $\checkmark$

$$\text{Percentage outliers} = \frac{2}{13} \times \frac{100}{1} \quad \checkmark$$

$$\text{Percentage outliers} = 15,4\% \quad \checkmark$$

Question 2: [13]

The pie chart shows the composition of all Annie's Subject marks for the mid-year examination.
The total of all Annie's subjects is 426.



Answer the following:

- 2.1 Calculate her percentage for each subject.

(6)

Round off to the nearest integer.

Measure the sectors with a protractor.

$$\text{Afr: } 56^\circ \rightarrow \frac{56}{360} \times \frac{426}{1} \approx 66\% \quad \checkmark$$

$$\text{Eng: } 63^\circ \rightarrow \frac{63}{360} \times \frac{426}{1} \approx 75\% \quad \checkmark$$

$$\text{Maths: } 69^\circ \rightarrow \frac{69}{360} \times \frac{426}{1} \approx 82\% \quad \checkmark$$

$$\text{PS: } 57^\circ \rightarrow \frac{57}{360} \times \frac{426}{1} \approx 67\% \quad \checkmark$$

$$\text{LS: } 54^\circ \rightarrow \frac{54}{360} \times \frac{426}{1} \approx 64\% \quad \checkmark$$

$$\text{Geo: } 61^\circ \rightarrow \frac{61}{360} \times \frac{426}{1} \approx 72\% \quad \checkmark$$

$$[56^\circ + 63^\circ + 69^\circ + 57^\circ + 54^\circ + 61^\circ = 360^\circ]$$

$$[66 + 75 + 82 + 67 + 64 + 72 = 426]$$

- 2.2 Calculate the ratio (in simplest form) between Annie's subject with the lowest percentage and Annie's subject with the highest percentage.

(3)

Subject with lowest percentage: LS = 64%

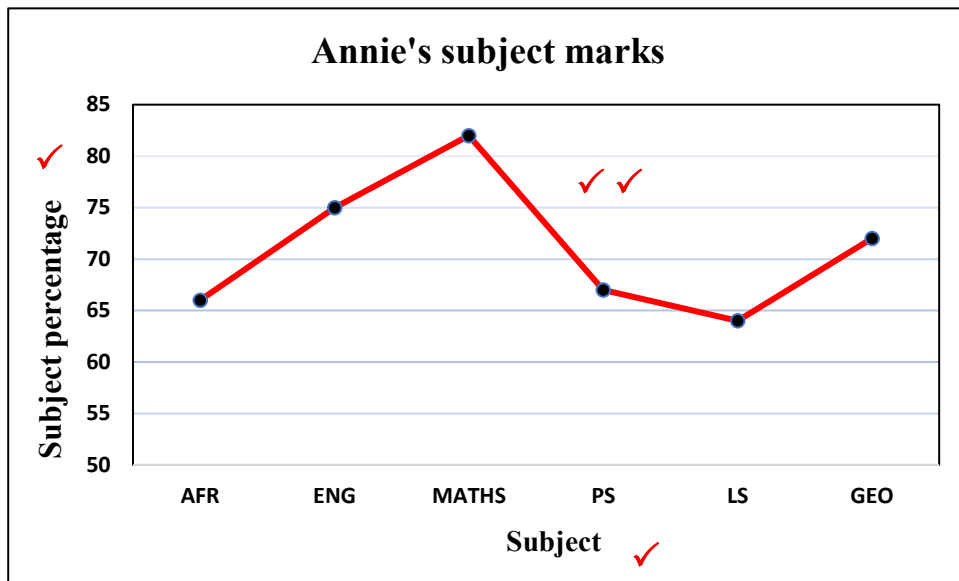
Subject with lowest percentage: Maths = 82%

$$\text{Ratio} = \frac{64}{82} = \frac{64}{82} \div \frac{2}{2}$$

$$\text{Ratio} = \frac{32}{41} \quad \checkmark$$

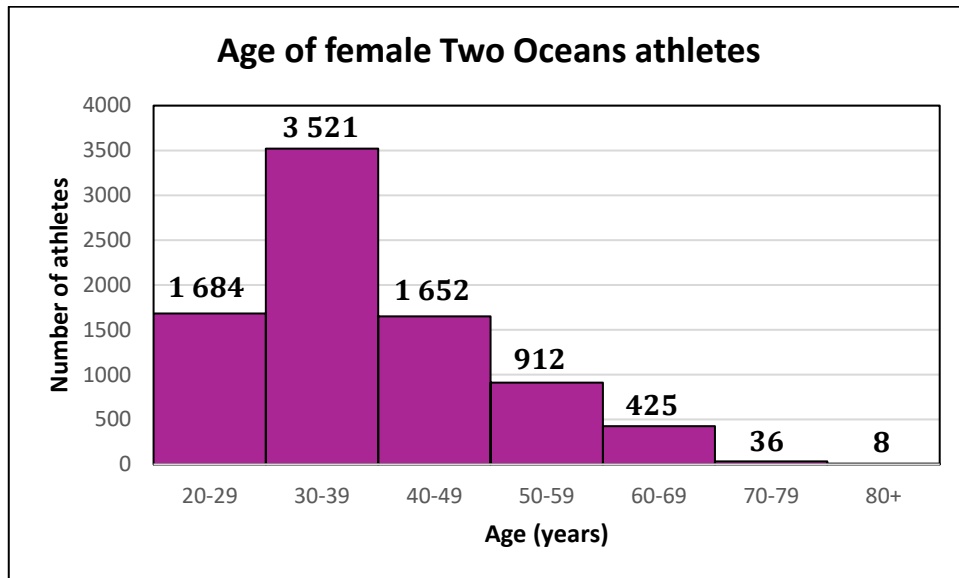
2.3 Represent the data as a line graph.

(4)



Question 3: [8]

The graph shows the number of female athletes who participated in the Two Oceans Half Marathon on 12 April 2026.



Answer the following:

3.1 What type of graph is represented here? (1)

Histogram ✓

3.2 In which age group did the most athletes participate? (1)

30 – 39 ✓

3.3 How many female athletes participated in total in the Two Oceans Half Marathon in 2026? (2)

Total = 1 684 + 3 521 + 1 652 + 912 + 425 + 36 + 8 ✓

Total = 8 238 ✓

- 3.4 According to the Two Oceans organisers 10% more female athletes participated in the half-marathon in 2026 than in 2025. (3)

Calculate the number of female athletes who participated in the half marathon in 2025. Round off to the nearest integer.

Assume x female athletes participated in the half marathon in 2025

$$\therefore 110\% \text{ of } x = 8\,238 \quad \checkmark$$

$$\therefore x = \frac{8\,238}{110\%}$$

$$\therefore x = 7\,789,0909 \dots \quad \checkmark$$

$$\therefore x \approx 7\,789$$

$\therefore$ In 2025 there were 7 789 female athletes participating in the half marathon. $\checkmark$

- 3.5 How would you rephrase the title of the graph to make it more descriptive? (1)

Age of female athletes in the Two Oceans Half Marathon

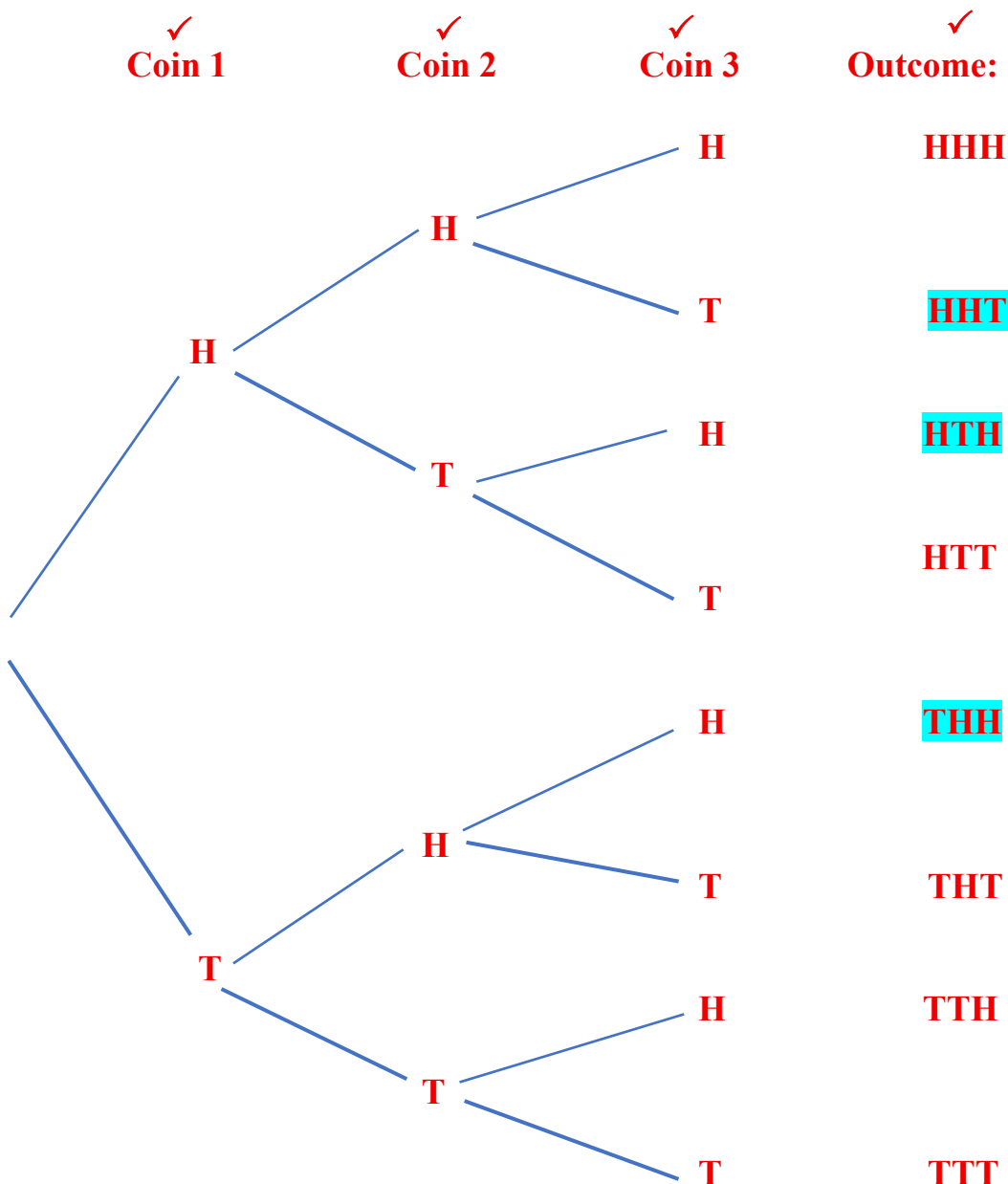
12 April 2026 $\checkmark$

Question 4: [6]

Three coins are tossed.

What is the probability that two coins will land on heads and the third coin will land on tails?

(Use a tree diagram.)



There are 8 possible outcomes.

With three of the possible outcomes, two coins will land on heads and the third land on tails.

Probability = $\frac{3}{8}$ ✓ ✓

Question 5: [6]

A fruit basket is being packed with the following fruit:

8 bananas, 6 oranges, 4 apples and 2 peaches.

You can choose one fruit from the basket. What is the probability that you chose: (Express your answer as a decimal fraction.)

Total number of fruits: $8 + 6 + 4 + 2 = 20$

5.1 an orange (2)

Probability (orange) = $\frac{6}{20} = 0,3$ ✓

5.2 not an orange or an apple (2)

Orange and apple: $6 + 4 = 10$

∴ Not orange and apple: $20 - 10 = 10$

Probability (not orange and apple) = $\frac{10}{20} = 0,5$ ✓

5.3 a pear (2)

Probability (pear) = $\frac{0}{20} = 0$ ✓

There are no pears.