



Acumen Teach  
To the point


# Statistics & Data

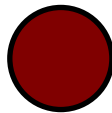
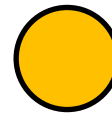
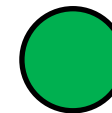
## Master-box

Statistics—Logic—Mathematical knowledge application—Data Analysis—Averages—Graphs



 2 hours

 38 Questions

Easy (12 Questions)	/12
Moderate(12 Questions)	/24
Difficult(12 Questions)	/36
<b>Total Marks</b>	<b>/72</b>
How did you do?	
  	



# Easy Questions

1. What does the mode represent in a bar chart?

(1 marks)

2. Find the mean of the numbers: 4, 6, 8, 10.

(1 marks)

3. What is the median of the data set: 7, 12, 9, 5, 3?

(1 marks)



4. Calculate the range for the data: 15, 22, 10, 18.

(1 marks)

5. If a pie chart shows 25% of the chart shaded, what fraction of the total is represented?

(1 marks)

6. A bag contains 3 red balls and 7 blue balls. What is the probability of selecting a red ball?

(1 marks)

7. From a frequency table, identify the most frequent outcome.

(1 marks)

8. What is an outlier in a data set?

(1 marks)



9. Define cumulative frequency.

(1 marks)

10. What does a positive correlation on a scatter graph look like?

(1 marks)

11. A die is rolled. What is the probability of rolling an even number?

(1 marks)

12. What does the line in the middle of a box in a box plot represent?

(1 marks)



# Moderate Questions

13. Calculate the mean of this data:

Value	Frequency
1	3
2	5
3	2

(2 marks)

14. A coin is flipped twice. What is the probability of getting at least one head?

(2 marks)

15. Explain what the area of each bar in a histogram represents.

(2 marks)

16. Find the lower quartile for the data: 3, 7, 8, 12, 15, 20, 21.

(2 marks)



17. Explain how you would compare the spread of two data sets using their ranges.

(2 marks)

18. A scatter graph shows a weak negative correlation. What does this mean?

(2 marks)

19. From a cumulative frequency graph, estimate the median of a data set.

(2 marks)

20. Draw and calculate probabilities using a tree diagram for flipping two coins.

(2 marks)

21. In a class of 30 students, 15 study French, 10 study German, and 5 study both. How many study neither?

(2 marks)



22. A school has 300 students. If 30 students are in Year 10, how many should be in a stratified sample of 50?

(2 marks)

23. Compare the spread and medians of two box plots.

(2 marks)

24. Estimate the mean for grouped data:

Interval	Frequency
0-10	3
10-20	5
20-30	2

(2 marks)



# Difficult Questions

25. Calculate the standard deviation for the numbers: 2, 4, 6, 8.

(3 marks)

26. A bag contains 3 red balls and 2 blue balls. Two balls are drawn with replacement. What is the probability both are red?

(3 marks)

27. A bag contains 3 red balls and 2 blue balls. Two balls are drawn without replacement. What is the probability both are red?

(3 marks)





28. Explain how an outlier affects the mean and median of a data set.

(3 marks)

29. Explain the significance of the equation  $y = mx + c$  in a regression line.

(3 marks)

30. Compare two distributions using their interquartile ranges and medians.

(3 marks)

31. Calculate the z-score for a data point  $x = 75$ , where the mean is 70 and the standard deviation is 5.

(3 marks)



**32.** What is the purpose of a chi-squared test in statistics?

**(3 marks)**

**33.** Calculate probabilities for dependent events using a probability tree.

**(3 marks)**

**34.** Describe the properties of a normal distribution.

**(3 marks)**

**35.** A game costs £5 to play. The probability of winning £20 is 0.1, and the probability of winning nothing is 0.9. What is the expected value of playing the game?

**(3 marks)**

**36.** Interpret a cumulative frequency graph to estimate the interquartile range.

**(2 marks)**