GCSE Foundation Mathematics
Practice Test 7: Statistics

Instructions:
Answer all questions. Show your working clearly.
Calculators may be used unless stated otherwise.
Time allowed: 90 minutes

Section A: Averages and Range

1. Find the mean, median, mode, and range for these data sets:

   (a) $34, 29, 37, 34, 26, 34, 32, 30$

   (b) $78, 71, 84, 78, 89, 66, 78, 75$

   (c) $9.6, 6.3, 8.1, 6.3, 10.7, 6.3, 9.2$

   (d) $126, 113, 119, 126, 98, 115, 108, 126, 122$

2. The reaction times (in seconds) of 10 drivers in a test are:

   $$0.8, 0.6, 1.2, 0.9, 1.5, 1.1, 0.7, 1.3, 1.0, 0.9$$

   Calculate:

   (a) The mean reaction time

   (b) The median reaction time

   (c) The range

3. The number of text messages sent by teenagers in one day are:

   $$45, 32, 58, 41, 28, 63, 39, 52, 35, 67, 44, 29, 71, 56$$

   Find:

   (a) The mean number of messages

   (b) The median number of messages

   (c) How many teenagers sent more than the mean

4. A set of 6 numbers has a mean of 67. Five of the numbers are 62, 71, 58, 74, and 65. Find the sixth number.

5. The mean of 18 numbers is 84. When a nineteenth number is added, the mean becomes 86. Find the nineteenth number.

6. In a data set, the mean is 96, the median is 89, and the range is 64. If the smallest value is 58, find the largest value.

Section B: Frequency Tables

7. The frequency table shows the number of cups of coffee consumed per day by office workers:

Cups of coffee	Frequency
0	5
1	12
2	28
3	18
4	9
5	4

Calculate:

(a) The total number of workers

(b) The mode

(c) The median

(d) The mean number of cups per day

(e) The range

8. The frequency table shows the heights of trees in a forest (in meters):

Height group	Frequency
5-9	14
10-14	32
15-19	45
20-24	38
25-29	21

Find:

(a) The total number of trees

(b) The modal height group

(c) An estimate of the mean height (use midpoints)

(d) The percentage of trees taller than 19 meters

9. Complete this frequency table for the data:

$$2, 4, 6, 2, 5, 4, 8, 2, 3, 4, 6, 2, 7, 3, 2$$

Value	Frequency
2	
3	
4	
5	
6	
7	
8	

Then find the mode and median.

Section C: Charts and Graphs

10. The bar chart shows the types of movies watched at a cinema last week.

    [Imagine a bar chart with: Action-150, Comedy-125, Drama-95, Horror-80, Romance-75, Sci-Fi-65]

    (a) How many people watched drama movies?
    (b) Which movie type was least popular?
    (c) How many people went to the cinema in total?
    (d) What percentage watched action movies?
    (e) Draw a pie chart for this data (calculate the angles)

11. The pie chart shows how 240 employees travel to work during winter.

    [Imagine a pie chart with: Car-162°, Public Transport-90°, Walk-54°, Cycle-36°, Taxi-18°]

    Calculate:

    (a) How many employees drive to work
    (b) How many employees use public transport
    (c) How many employees walk to work
    (d) How many employees cycle
    (e) The percentage who take a taxi

12. The histogram shows the time (in hours) people spend watching TV per week.

    [Imagine a histogram with time intervals: 0-10 (frequency 8), 10-20 (frequency 18), 20-30 (frequency 35), 30-40 (frequency 24), 40-50 (frequency 15)]

    Find:

    (a) The total number of people surveyed
    (b) The modal time interval
    (c) An estimate of the mean TV watching time
    (d) How many people watch more than 30 hours per week

13. Draw a stem-and-leaf diagram for this data:

    $$28, 45, 31, 56, 29, 48, 37, 62, 33, 51, 44, 38, 47, 35, 59$$

    From your diagram, find:

    (a) The median
    (b) The range
    (c) The mode (if any)

Section D: Scatter Graphs and Correlation

14. Describe the type of correlation shown in these scatter graphs:

    (a) Hours of practice vs. Musical skill level
    (b) Outside temperature vs. Winter coat sales
    (c) Employee ID vs. Salary
    (d) Altitude vs. Air pressure

(e) Phone number vs. Age

15. The table shows the number of hours of sunlight and ice cream sales (£) for 8 days:

Hours of sunlight	2	4	6	8	10	12	14	16
Ice cream sales	80	120	160	200	240	280	320	360

(a) Plot this data on a scatter graph

(b) Describe the correlation

(c) Draw a line of best fit

(d) Use your line to estimate ice cream sales for 9 hours of sunlight

(e) Use your line to estimate sunlight hours needed for £300 sales

16. State whether you would expect positive, negative, or no correlation between:

(a) Hours of revision and exam results

(b) Age of smartphone and battery life

(c) Postcode and intelligence

(d) Price of concert tickets and attendance

Section E: Basic Probability

17. Express these probabilities as fractions, decimals, and percentages:

(a) Absolutely certain

(b) Impossible event

(c) Equally likely

(d) Very probable

(e) Highly unlikely

18. A fair sixteen-sided die (numbered 1-16) is rolled. Find the probability of getting:

(a) A 12

(b) A factor of 16

(c) A number greater than 12

(d) A number less than 6

(e) A 17

(f) A multiple of 4

19. A bag contains 18 red tokens, 15 blue tokens, and 12 green tokens. A token is picked at random. Find the probability of picking:

(a) A red token

(b) A blue token

(c) A green token

(d) A red or blue token

(e) Not a green token

20. A game wheel has 30 equal sections: 12 purple, 10 orange, and 8 silver. Find the probability of spinning:

(a) Purple
(b) Orange
(c) Silver
(d) Purple or silver
(e) Not orange

21. The probability of a train being delayed is $\frac{5}{12}$. What is the probability the train will be on time?

22. In a sports club of 72 members, 48 prefer outdoor activities. If a member is chosen at random, what is the probability they:

(a) Prefer outdoor activities
(b) Prefer indoor activities

Section F: Two-Way Tables and Combined Events

23. The two-way table shows information about students' internet usage:

	Light User	Moderate User	Heavy User	Total
Male	18	32	25	75
Female	22	28	20	70
Total	40	60	45	145

If a student is chosen at random, find the probability they:

(a) Are a moderate user
(b) Are a female heavy user
(c) Are male
(d) Are a light user, given they are female
(e) Are male, given they are a moderate user

24. A card is drawn from a standard pack of 52 cards. Find the probability of drawing:

(a) A 10
(b) A club
(c) A red card
(d) The jack of diamonds
(e) A queen or king
(f) A black ace

25. A fair die is rolled and a fair coin is flipped. Find the probability of getting:

(a) A 6 on the die and heads on the coin
(b) An even number on the die and tails on the coin
(c) An odd number on the die and heads on the coin
(d) A number less than 3 on the die and any result on the coin

26. A box contains 7 red marbles and 11 blue marbles. Two marbles are drawn without replacement. Find the probability of drawing:

(a) Two red marbles
(b) Two blue marbles
(c) One red and one blue marble
(d) At least one red marble

Section G: Experimental Probability

27. A biased spinner is spun 250 times. It lands on green 95 times.

    (a) What is the experimental probability of getting green?

    (b) What is the experimental probability of not getting green?

    (c) If the spinner is spun 400 more times, estimate how many greens you would expect

28. A coffee machine is tested 360 times with these results: Perfect coffee: 252 times, Weak coffee: 72 times, Machine error: 36 times

    Calculate:

    (a) The experimental probability of each outcome

    (b) Which outcome is most likely to occur next

    (c) If the machine is used 900 times, estimate how many errors you would expect

29. The table shows the results of drawing cards from a deck 150 times:

Suit	Hearts	Diamonds	Clubs	Spades
Frequency	42	38	35	35

    (a) Calculate the experimental probability of each suit

    (b) Which suit appeared most frequently?

    (c) If cards are drawn 300 times, estimate how many clubs you would expect

    (d) If the deck was fair, what frequency would you expect for each suit in 150 draws?

Section H: Problem Solving

30. A school cafeteria survey asked 350 students about their lunch preferences. The results were: Sandwiches: 98 students, Hot meals: 91 students, Salads: 70 students, Soup: 56 students, Snacks: 35 students

    (a) Draw a bar chart for this data

    (b) Calculate the angles needed for a pie chart

    (c) What percentage chose sandwiches?

    (d) If 1400 students ate lunch, estimate how many would choose hot meals

31. The box plot shows the distribution of student exam scores (out of 100):

    [Imagine a box plot with: Minimum 35, Q1 58, Median 72, Q3 84, Maximum 96]

    From the box plot, find:

    (a) The median exam score

    (b) The interquartile range

    (c) The range

    (d) What percentage of students scored more than 84?

    (e) What percentage of students scored between 58 and 84?

32. A lottery uses colored balls. The probability of drawing a gold ball is $\frac{3}{8}$ and the probability of drawing a silver ball is $\frac{1}{4}$.

    (a) What is the probability of drawing a bronze ball?

(b) If there are 24 balls in total, how many of each color are there?

33. The mean score of 20 chess players is 1850 points. The mean score of 30 beginners is 950 points. Calculate the mean score for all 50 players.

34. A manufacturing process produces 6000 widgets. 144 are found to be faulty.

    (a) What is the probability that a randomly chosen widget is faulty?

    (b) In a batch of 20000 widgets, estimate how many would be faulty

    (c) What is the probability that a randomly chosen widget is not faulty?

35. Compare these two data sets: Set A: 24, 28, 32, 36, 40, 44, 48 Set B: 20, 30, 34, 37, 39, 42, 52

    Calculate the mean and range for each set, and comment on which set is more consistent.

Answer Space

Use this space for your working and answers.

END OF TEST

Total marks: 100

For more resources and practice materials, visit:
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