Constructing a frequency table with class intervals from raw data

1. A class of second year pupils had a test recently and the following marks were obtained:

    32   43   23   18   36   21   9   45   45   32   33   46

    7   12   24   20   32   11   48   21   37   42   42   41

    Copy and complete this tally table for the above data.

Mark	Tally Marks	Number
1–10		
11–		
–50		

    [6]

2. A sample of 25 Christmas trees was selected and the heights of them measured. The results are shown here. [Measurements are in metres.]

1·3	2·4	1·5	3·3	1·1
2·1	2·2	2·7	1·7	2·3
1·5	2·4	1·1	4·0	2·6
3·5	3·3	2·8	1·0	2·7
4·1	3·2	1·9	3·8	2·7

Height	Tally	Frequency
1·0 – 1·4		
2·5 –		
– 4·4		

    Complete the table for the figures given.   [8]

    [14 marks]

Determining mean, median, mode and range of a data set

1.   The ages of the players in a local football team are given below:

        19   23   30   24   19   25   31   27   28   30   19

Calculate the mean, median, mode and range for the above data.   [7]

2.   The weights, in kilograms, of 20 new-born babies are shown below.

      2·8   3·4   2·8   3·1   3·0   4·0   3·5   3·8   3·9   2·9
      2·7   3·6   2·5   3·3   3·5   4·1   3·6   3·4   3·2   3·4

Find the   **(a)**   mean   **(b)**   median

             (c)   mode   **(d)**   range.   [2, 2, 1, 2]

3.   The weekly takings in small store, to the nearest £, for a week in December and March
are shown below

December	2131	2893	2429	3519	4096	4810
March	1727	2148	1825	2397	2901	3114

(a)   Calculate the mean takings for December and March.   [4]

(b)   Give a reason for the difference in the answers in part (a).   [1]

4.   A footballer scored the following numbers of goals for 9 matches.

      1   0   3   3   2   4   1   4   3

After his tenth match his mean score was 2·6 goals per match.

How many goals did he score in the tenth match?   [3]

[22 marks]

Interpreting calculated statistics to compare data

1. 20 light bulbs were tested to see how long they would last. The lifetimes of the bulbs are given below in hours.

    1503 1469 1511 1494 1634 1601 1625 1492 1495 1505
    1487 1493 1006 1512 1510 1599 1501 1486 1471 1598

    The manufacturing company claims that the *average* lifetime of a light bulb is 1500 hours.

    Do you agree with their claim?   [3]

2. The stem-and-leaf tables show the marks of a class of pupils in two maths tests.

2	2						**paper 1**
3	0	3					
4	0	2	4				
5	1	1	1				
6	2	5	5	6			
7	0	0	1	5	5		
8	1	3	3	4	6	8	
9	0	1	1	4	5		

2	0	1	3					**paper 2**
3	0	2	3	4				
4	1	1	3	5	5			
5	2	4	5	5	8	8	9	
6	0	1	4	5				
7	1	3	5					
8	3	7						
9	0							

    $n = 29$; $2 | 2$ represents 22

    (a) For each paper, calculate the median and range.   [4]

    (b) In which paper did the pupils do better?   [1]

3. Your parents tell you that they have been thinking about the amount of pocket money that they give you. They have been asking other parents and give you a list of the amounts of pocket money your friends receive.

    £9   £11   £15   £13   £9   £20   £12   £18   £10

    They ask you to say whether you would like to have the mean, the median or the mode of the above figures.

    Which one would you choose and why?   [4]

    [12 marks]

Representing raw data in a pie chart

1. A class of 30 pupils was asked about how they travelled to school and this pie chart drawn.
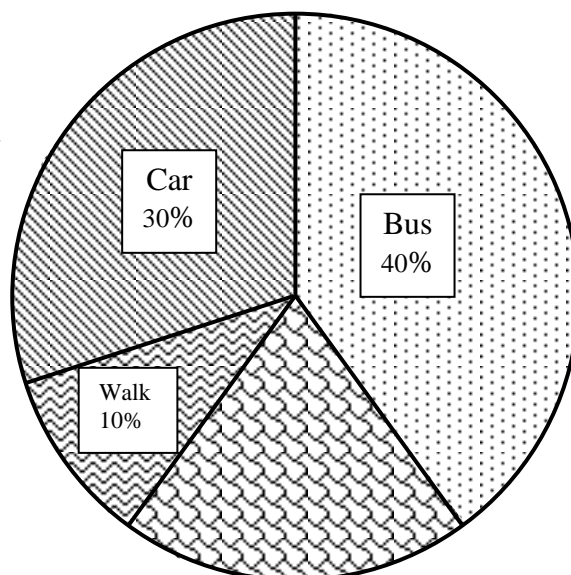
 (a) How many
 (i) walked
 (ii) came by bus
 (iii) came by car
 (iv) cycled? [4]

 (b) What was the least popular method of travel? [1]

2. As people left a Sports Centre they were asked which sport they had taken part in. The table shows the results.

Sport	Number of people
Squash	4
Swimming	17
Badminton	8
Skating	11

Draw a pie-chart to show this information.

[5]

3. A group of pupils are asked their favourite type of music.
The results are shown below.

Type of Music	Number of Pupils
Pop	43
Rock	12
Hip-Hop	9
R and B	18
Disco	23
Rap	15

Show this information in a pie chart. [5]

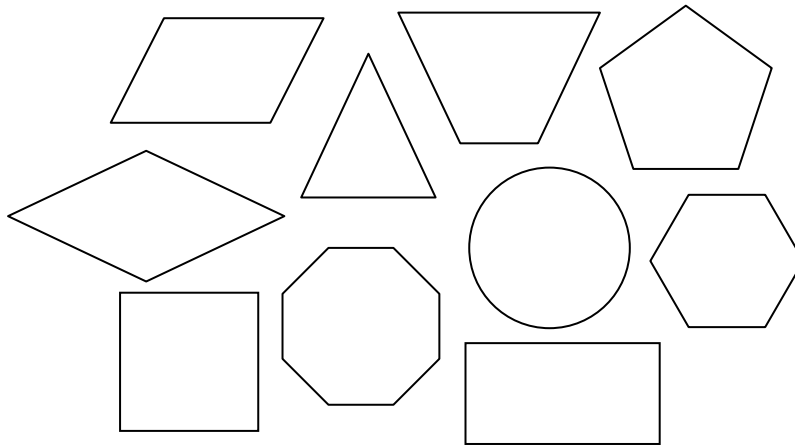**[15 marks]**

Using probability

1. A die is rolled. Find the probability that it lands showing
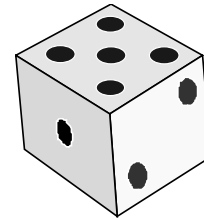
   (a) 1   **(b)** an odd number

   (c) a prime number   **(d)** a multiple of 3   **(e)** a number less than 3   [5]

2. If one of these geometric shapes is picked at random, what is the probability that it has

   (a) 4 sides   **(b)** a centre of symmetry   **(c)** less than 3 sides   [3]

3. Darren and his friend are playing with a pack of cards from which his maths teacher has confiscated the Ace of Spades and the King of Hearts.

   What is the probability that the first card he deals is

   (a) an Ace   **(b)** a black card   **(c)** a Queen   **(d)** the 4 of clubs?

        [4]

4. A coin is tossed and a die thrown.

   Copy and complete this table to show all the possible results: [2]

	1	2	3	4	5	6
Heads(H)		2H				
Tails(T)				4T		

   What is the probability of getting: **(a)** Heads and an even number?

            (b) Tails and a prime number?   [2]

   [16 marks]