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Statistics Booklet

This booklet has been made so that a calculator will not be required unless otherwise stated.

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Chapter 1: Averages (MMMMR)

Calculate the mean and range for each of the following sets of numbers.

1. 14, 18, 20, 18, 15, 19, 35, 21
2. 80, 85, 78, 63, 74
3. 100, 200, 150, 150
4. 32, 41, 29, 46, 35, 30, 25
5. 40, 31, 35, 24, 28, 34, 24, 28
6. 50, 45, 48, 36, 41
7. 150, 120, 110, 140, 160, 220
8. 80, 64, 52, 58
9. 10, 9, 11, 13, 6, 8, 15, 12, 9, 14
10. 18, 20, 26, 22, 30, 16, 20, 22

Calculate the median and mode of the following sets of numbers.

11. 13, 16, 20, 24, 24, 24, 30, 32, 34
12. 130, 124, 132, 135, 130, 133, 140
13. 84, 80, 94, 88, 90, 92, 90, 86, 98
14. 56, 18, 26, 39, 30, 45, 18, 38
15. 120, 114, 113, 118, 120, 117, 114, 115, 126, 128
16. 90, 84, 80, 92, 86, 91, 100, 86
17. 71, 75, 80, 85, 72, 76, 90, 98, 66, 90
18. 12, 15, 9, 4, 3, 1
19. 445, 381, 299, 418, 272, 418, 530, 459
20. 18, 26, 30, 32, 26, 40, 31, 26, 30, 25, 26, 48, 40, 26

21. The height of boys in a P4 class were taken and recorded below
1.12m, 1.20m, 1.08m, 1.04m, 1.21m

- (a) One of the boys Peter says the mean height is 5.65m, what has he done wrong, and what is the correct mean?
- (b) Calculate the range and median heights.

22. The amount of strawberries in a box is recorded below;

27, 32, 30, 29, 30, 33, 28, 31

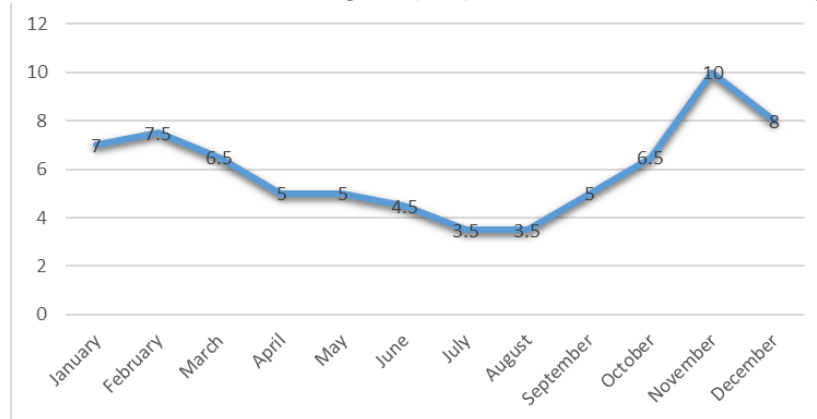
- (a) Calculate the **mean** amount of strawberries in a box.
- (b) A box is sold for £1.20, what is the average (use mean) price per strawberry?
- (c) In part b you were explicitly told to use the mean, would your answer change if you use the median or mode?

23. The temperature during the week is recorded below in °C

Mon	Tues	Wed	Thurs	Fri	Sat	Sun
16	14	17	16	15	13	14

- (a) Dana says the average temperature is 14°C , did she find, the mean, median or mode?
- (b) Calculate the range of temperatures throughout the week.
- (c) Every day the following week was exactly two degrees warmer, what will the mean and range be that week?

24. The amount of rainfall in Glasgow (cm) is recorded in the line graph below



Calculate the mean, median, mode and range of rainfall in Glasgow.

25. The amount of time it takes pupils to get to school in a class is recorded in a stem and leaf diagram below.

Stem	Leaf
0	5 6 7
1	2 2 2 4 4 4 4 5 5
2	0 1 1 2

- (a) Calculate the modal and median time for the class to get the school.
- (b) Calculate the mean and range times.

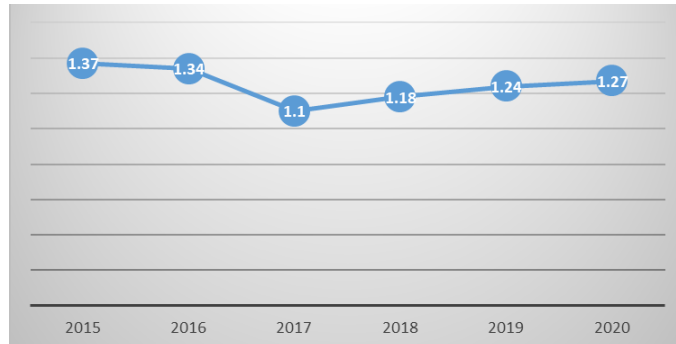
26. The number of pairs of shoes in a shop sold in each week is recorded below.

Week 1	140
Week 2	134
Week 3	158
Week 4	302
Week 5	56
Week 6	86

- (a) Calculate the mean and range of shoes sold each week.

- (b) The average price of a pair of shoes sold is £60, using your mean what is a good estimate for how much money was made per week selling shoes?

27. The conversion rate of £1 into euros changes every day. The mean price per year is shown in the following line graph from 2015-2020.



- (a) Calculate the mean conversion between pounds and euros over the past 6 years.
- (b) If you convert £400 in the year 2019 and 2020, how much more money would you get in 2020?

Chapter 2: Comparing Averages

For each of the following write **two statements** comparing the two sets of data.

1. The following shows the mean and range of the test scores of Mr McDonald and Mr McDougall's maths classes.

Mr McDonald's class		Mr McDougall's class	
Mean Score	Range	Mean Score	Range
77	12	81	23

2. The following shows the mean and range of times (minutes) for two rival pizza companies to deliver in minutes.

Pizza Cafe		The Pizzeria	
Mean time	Range	Mean time	Range
14	20	12	15

3. The mean price and range of prices (£) of a suit in two different men's department stores are shown below.

Slates		Top Suits	
Mean price	Range	Mean price	Range
98	88	98	64

4. The median house price and range of house prices of two areas of Glasgow are recorded below.

Area 1		Area 2	
Median price	Range	Median price	Range
120,000	80,000	150,000	10,000

5. The mean number of goals per team in two league and the respective ranges are recorded in the table below.

Scottish South East Division		Scottish South Division	
Mean Goals	Range	Mean Goals	Range
64.5	20	56.25	31

6. The wage of workers in company A is recorded below
23,000 25,000 28,000 24,000 22,000

- (a) Calculate the mean and range of wages in Company A.

In company B, the mean wage is £26,000 and the range is £2000

- (b) Make two valid comparisons between the wages in company A and B.

7. The number of pupils in each year group in Westwood High School are recorded below
140 155 160 145 156 102

- (a) Calculate the mean and range of number of pupils per year group. In Southwood High School, the mean number of pupils per year group is 151 and range of year groups is 78.
- (b) Make two valid comparisons between the amount of pupils in year groups in both the schools.

8. The amount of money spent (£) in restaurant 1 by groups is listed below.
88.50 106.25 92 74 84.25

- (a) Calculate the range and mean amount spent by groups in restaurant 1

The mean amount spent by groups in restaurant 2 is £101.50 and the range is £14.

- (b) Make two valid comparisons about the amount spent by groups between restaurant 1 and restaurant 2.

9. The weight (kgs) of members of a Gym in Edinburgh are recorded
88 90 122 94 82 94 148 98

- (a) Calculate the mean and range of weights of members in the Gym in Edinburgh.

The mean weight of members in Stirling is 96kg and the range is 15kg.

- (b) Make two valid comparisons about the weight of members in Stirling and Edinburgh.

Chapter 3: Standard Deviation

Calculated are permitted for the entirety of chapter 3.

Calculate the mean and standard deviation for each of the following sets of numbers

1. 40, 50, 32, 38
 2. 11, 30, 36, 27, 26
 3. 108, 97, 115, 106, 103, 99, 93
 4. 55, 57, 60, 72, 99, 107
 5. 20, 20, 20, 20, 20, 20, 27
 6. 55, 62, 30, 51, 47
 7. 91, 90, 95, 89, 92, 87, 93
 8. 14, 25, 18, 24, 13, 11, 26, 29, 11, 30, 8
 9. 6, 8, 9, 4, 7, 6, 4, 8
 10. 30, 42, 35, 29, 31, 40
-
11. John is training for a 10km race. He starts looking at different training programmes. Before he begins the programme he records the following times.

56, 50, 52, 49, 58

 - (a) Calculate the mean and standard deviation of John's race times before the training programme.
 - (b) After the training programme, John has a mean time of 48.5 minutes and a standard deviation of 5.2. Make two valid comparisons between John's times before and after the training programme.
 12. The prices that cars pay for repairs in a garage in Paisley are listed below.

340, 310, 290, 280, 400

 - (a) Calculate the mean and standard deviation of the repairs for the garage in Paisley.
 - (b) In another garage in Irvine, the mean repair price was £340 and the standard deviation was 50. Make two valid comparisons between the price of repairs in the two garages.
 13. The amount of customers per day in Café Uno are recorded below.

500, 470, 320, 275, 345, 400, 420

 - (a) Calculate the mean and standard deviation of the number of customers
 - (b) In Café Duex the mean number of customers is 450 and the standard deviation is 65. Make two valid comparisons between the number of customers in Café Uno and Café Duex.

14. The number of points the basketball team Glasgow Rocks scores in a game is listed.

98, 86, 90, 92, 154

- (a) Calculate the mean and standard deviation of Glasgow Rocks' points.
- (b) Another team the Edinburgh Kings, had a mean score of 98 and a standard deviation of 12.4. Make two valid comparisons between the two teams.

15. Stuart is an avid gamer and records what place he finishes in a game where there are 100 players and the objective is to outlast your opponents.

12, 1, 2, 1, 7, 13, 28, 88

- (a) Calculate Stuarts mean and standard deviation for his finishing position
- (b) Ben plays the same game, and his mean finishing position is 19 and the standard deviation is 8.42. Make two valid comparisons between Stuart and Ben.

16. The price motorbikes sold at a garage are as follows.

12000, 9000, 7500, 9500, 9800

- (a) Calculate the mean and standard deviation of the price that motorbikes are sold.
- (b) The mean price of a car sold is £14,500 and the standard deviation is 2800. Make two valid comparisons between the price of cars and motorbikes sold at the garage.

Chapter 4: Five Figure Summary/Box Plots

Write down a Five-Figure Summary and Draw a Box Plot for each of the following sets of data.

- 4, 6, 8, 12, 8, 13, 10, 11, 12
- 30, 24, 33, 24, 39, 23, 32, 22, 29, 30
- 89, 80, 82, 68, 62, 78, 75
- 25, 34, 38, 45, 59, 59, 75, 80
- 104, 76, 45, 108, 95, 81, 66, 61, 70, 108, 109
- 4, 4, 6, 1, 2, 4, 5, 3, 4, 2, 3, 4, 5, 6, 6
- 10, 25, 18, 16, 48, 50, 68,
- 200, 155, 126, 151, 180, 190, 199, 204, 260, 177, 178, 194, 141

9. The following information below shows the temperatures on the day of Sunday League football games.

13, 12, 16, 18, 16, 15.5, 16, 16.5, 19, 20, 16

Draw a box plot of the information above.

10. The height of people who work in an office are plotted on a stem and leaf diagram.

Stem	Leaf
15	1 8
16	2 5 9
17	1 2 4 5 7 8
18	0 2 7 8
19	6

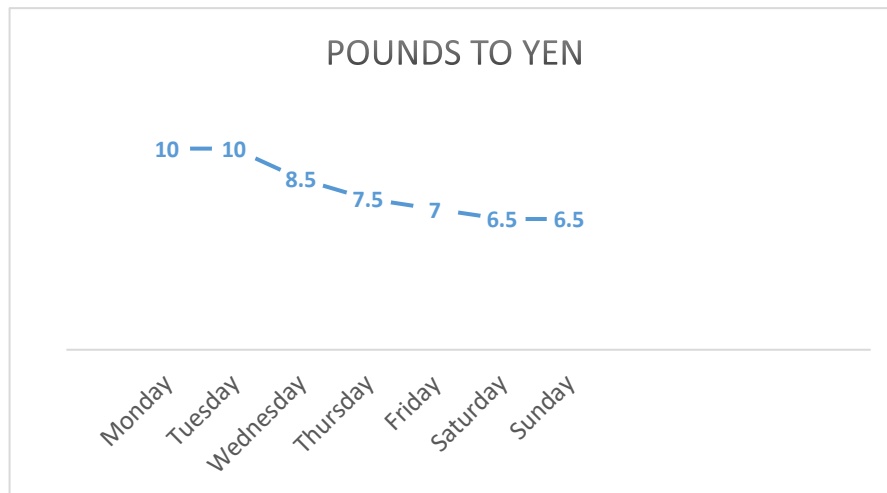
- (a) Create a Five-Figure summary of the information above
(b) Draw a Box Plot to show this information.

11. The amount of pupils who achieve a Nat 5 maths in a school is recorded below

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
130	145	126	144	136	129	132	148	151	155

- (a) Create a five figure summary for the information above
(b) Draw a box plot for the information shown.

12. The highest conversion rate of pounds to yen in a month is recorded in a line graph.



- (a) Create a 5 figure summary of the information above
 (b) Create a box plot to display this information.
 (c) If Matthew converted £200 into Yen, what is the difference between the most and least amount of Yen he would receive?

13. The number of goals per player is recorded in the table below for two teams

Red FC	0	0	3	3	0	7	11	4	8	15	23
AFC Blue	0	1	2	1	1	4	6	6	14	10	26

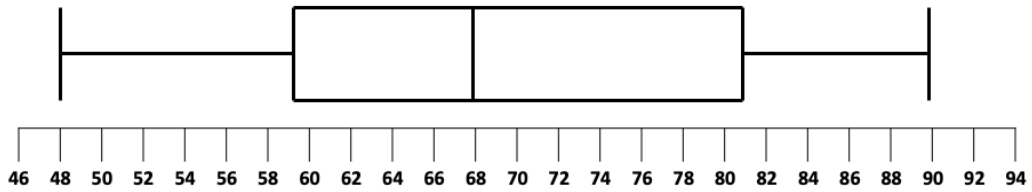
Draw a comparative box plot for the amount of goals scored by each player in the teams above.

14. A Stem and Leaf diagram of two classes results is recorded below

Scores		
Miss Cooper	stem	Mr Jones
2	4	8
6 5 2	5	1 7 9
7 6 0	6	0 1 5 6
9 6 6 5 5 2 1	7	0 2
8 8	8	1 1 1 8
	9	0 0

key: 9 | 0 means 90

A box plot is drawn of one of the sets of data below



- (a) Which class is represented by the data above?
 (b) Draw a box plot of the other classes results.

15. A stem and leaf diagram is drawn to show how much money customers spend at their local bookshop.

Stem	Leaf
0	8 9
1	1 5 5
2	0 5 8
3	1 2 3 5 5
4	0 1 6 8
5	5

- (a) Create a five figure summary to show the information above
 (b) Create a box plot to show the information above.

16. Two different shops counts hoe many customers they get in a day.

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

Key:
2|4 means 24

Draw a comparative box plot for the information above.

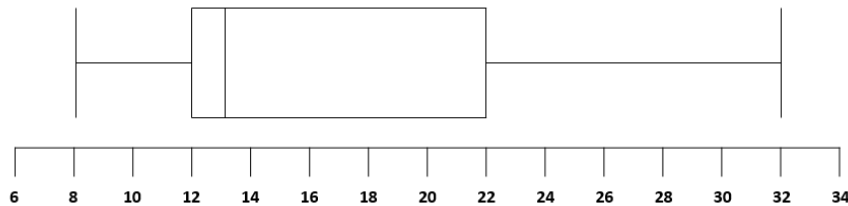
Chapter 5: IQR & SIQR

Calculate the median and IQR of the following sets of numbers

1. 30, 45, 28, 66, 17, 25
2. 100, 102, 101, 105, 104, 110, 106
3. 66, 89, 14, 71, 85, 40, 60, 78, 106
4. 10, 16, 15, 22, 73, 62, 59, 47
5. 94, 68, 55, 260, 178, 150, 133, 198

Calculate the median and SIQR of the following sets of numbers

6. 81, 70, 65, 38, 90, 26
 7. 350, 210, 400, 410, 280, 520, 600
 8. 120, 80, 250, 90, 95, 165, 190, 180
 9. 250, 300, 190, 210, 160, 400, 420, 380
 10. 1000, 4500, 2000, 1600, 2200, 3000, 4200, 5500
11. A box plot is drawn below to show how many customers do not turn up to check in when they have booked a room every month.



What is the median and the SIQR of the information above?

12. The table below shows the amount of waiters on shift at a restaurant during the week

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
16	12	8	18	24	26	14

- (a) Put the numbers above in order from smallest to biggest
- (b) Calculate the median number of waiters
- (c) Calculate the Interquartile-Range

13. The number of attendees to a car boot sale in Dumfries is recorded in a Stem and Leaf Diagram

Stem	Leaf
2	8 9
3	2
4	2 5
5	2 5 8
6	0 0 4 8
7	5

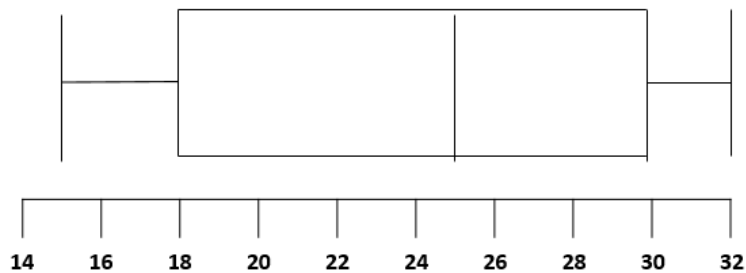
- (a) Calculate the median and SIQR
 (b) The median number of attendees to a car boot sale in Dundee is 45 and the SIQR is 12.5. Make two valid comparisons between the number of attendees to the two car boot sales.

14. The number of pupils off in a school day for two weeks **before the October Holidays** is recorded below.

18, 20, 20, 19, 16, 14, 25, 28, 22, 30

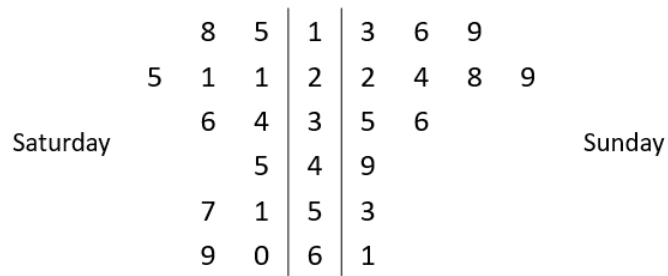
- (a) Calculate the median number of pupils off.
 (b) Calculate the IQR.

The results for the two weeks **after the October Holidays** are recorded in the Box Plot below.



- (c) Calculate the median and IQR of this information.
 (d) Write two comparative statements between the number of pupils absent from school **before** and **after** the October holidays.

15. A back to back stem and leaf diagram is made to show the number of cars that go under a tunnel per hour on a Saturday and Sunday.



- (a) Calculate the median and SIQR for Saturday
 (b) Calculate the median and SIQR for Sunday
 (c) Make two valid comparisons between the number of cars that go under a tunnel per hour on a Saturday and a Sunday.

16. The amount of weight people lost under a weight loss programme is written in a table.

3kg	2kg	7kg	5kg	12kg
4kg	4kg	9kg	6kg	7kg

- (a) Calculate the median and IQR of this information

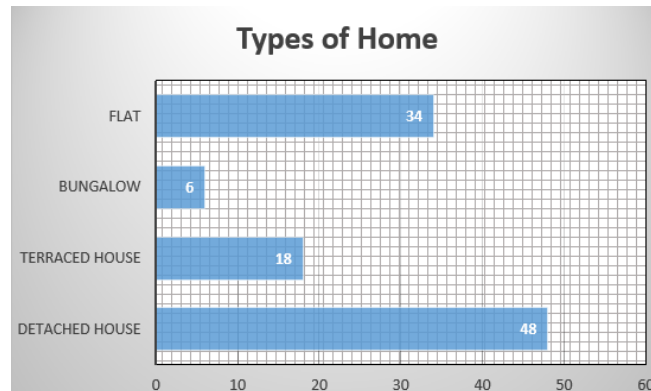
Two people were left out of this as they did not finish the programme, but they lost 1kg and 14kg respectfully.

- (b) How will this affect the median and IQR?

Chapter 6: Reading Tables

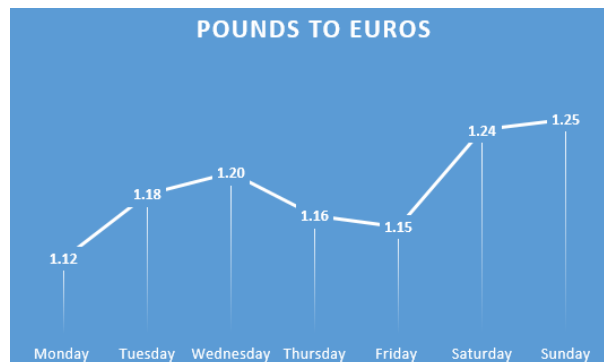
A chapter is permitted in this entire chapter

1. **Calculator Question** A survey is done on customers in a shop on what they live in.



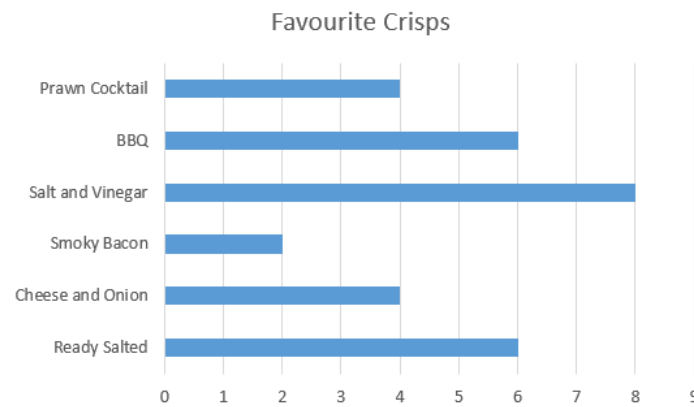
- (a) How many customers live in a Terraced house or a Bungalow
- (b) What percentage of customers live in flat?

2. **Calculator Question:** The conversion rate for pounds to euros throughout the week is shown on a line graph.



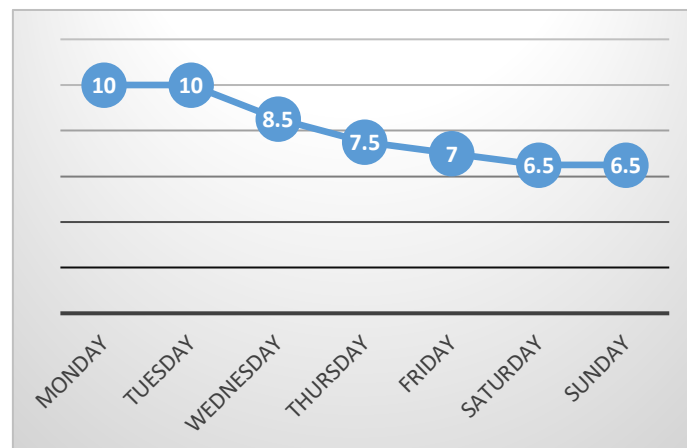
- (a) Alan exchanges £3250 into euros on Thursday, how much did he get for it?
- (b) How much more would he get if he exchanged it on Sunday?
- (c) Carrie exchanged £2000 and got 2240 euros, on what day did Carrie exchange on?

3. A class records their favourite flavour of crisps.



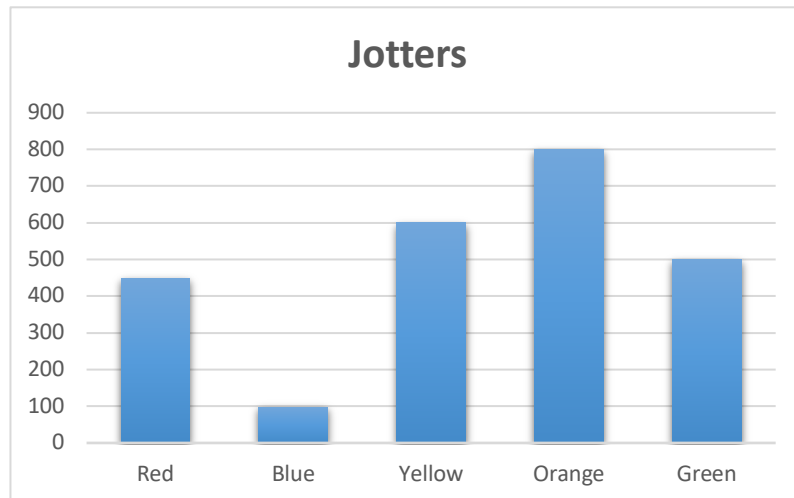
- (a) How many pupils picked prawn cocktail or cheese and onion?
(b) What fraction of pupils chose ready salted?
(c) What is the ratio of pupils who picked salt and vinegar to smoky bacon?

4. The temperature is recorded throughout a week in a line graph.



- (a) Between which two days saw the biggest drop in temperature, and by how much?
(b) What is the mean temperature for the week?

5. Mr Evans is the head of a Maths department. He is looking at how many jotters he has in storage and made a bar chart of the results.

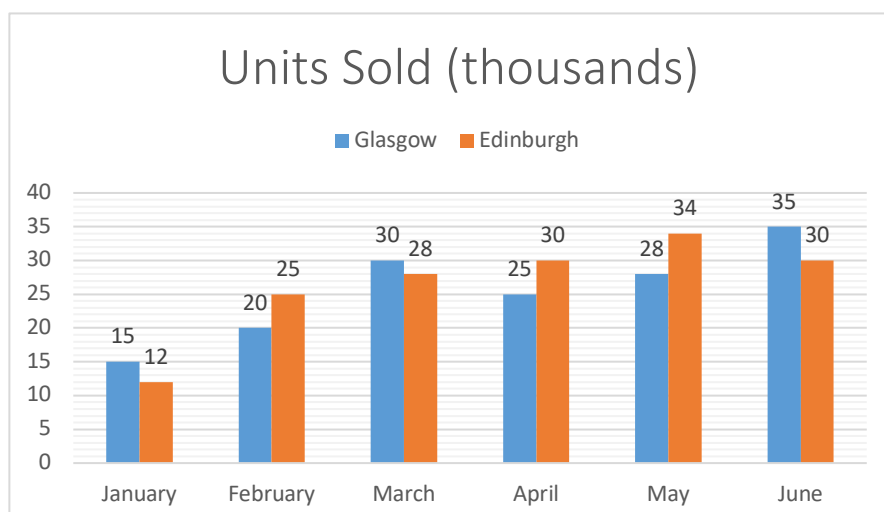


- (a) Calculate the total number of jotters Mr Evans has

The School Mr Evans works at has 550 pupils.

- (b) To ensure there are enough jotters to give every pupil one of each, which colour of jotters should Mr Evans order?
- (c) It costs £0.50 per jotter, how much would it cost to replenish the maths departments jotters?

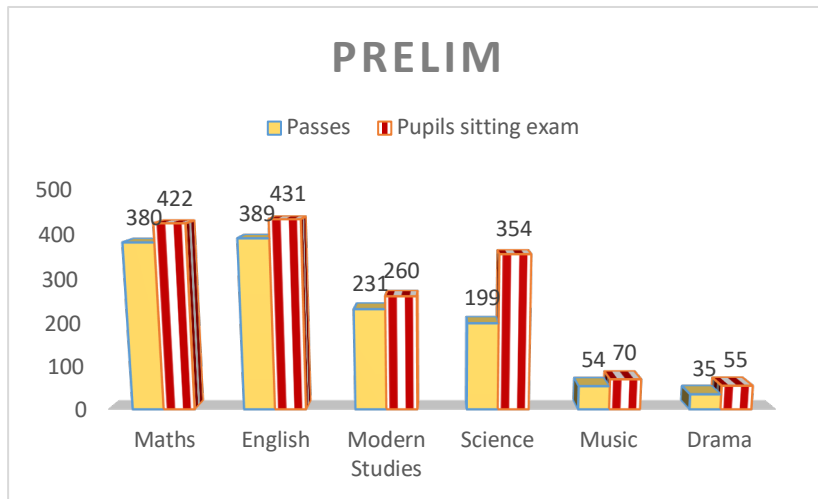
6. Two paper companies in Glasgow and Edinburgh compare how many units they have sold in the first 6 months of a year



- (a) In which month was there the biggest difference between how many units were sold and how much was the difference?

(b) The average price of a unit is £2.00. How much money did the Glasgow branch make in those 6 months from selling units of paper?

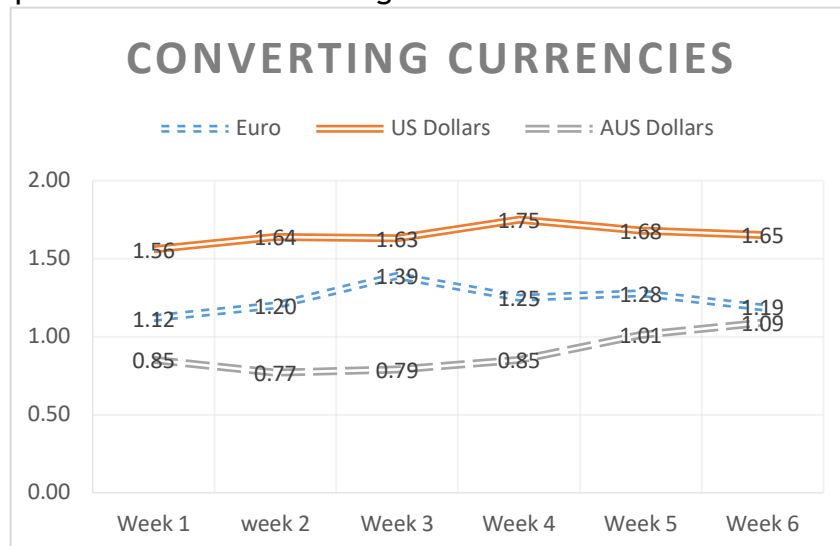
7. Prelim results across several departments are shown in a comparative bar chart between how many pupils passed and how many say exams.



(a) Which department(s) had the highest percentage of pupils passing?

(b) What was the mean percentage of pupils passing per subject? Take your answer to the nearest whole number

8. A graph is drawn for converting £1 into different currencies



(a) If Jane converts £800 into Euros in week 4, how much would she get?

Jane then spends 300 euros by the end of week 4. In week 5 she converts it back into pounds then US Dollars

(b) How much would she get in US dollars?

Chapter 7: Pie Charts

Draw a pie chart of the information below

1.

Rugby	Football	Basketball	Golf	Tennis
24	31	15	8	12

2.

Red	Green	Blue	Black	White
68	12	40	78	42

3.

Flat	Bungalow	Terraced	Semi-Detached	Detached
12	6	15	8	19

4.

Amazon	Netflix	Disney+
85	153	62

5.

Inverness	Aberdeen	Glasgow	Edinburgh
90	261	336	393

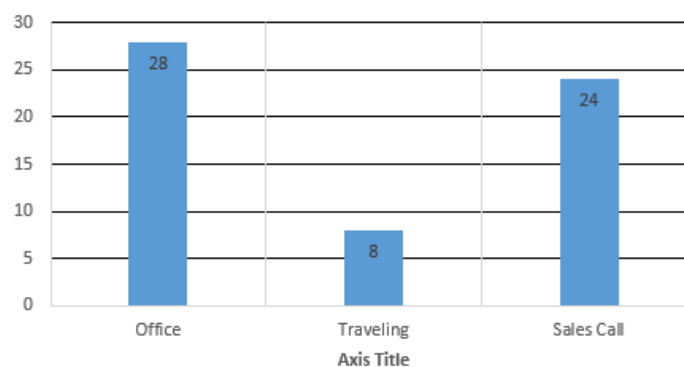
6.

BBC News	Sky News	CNN
65	25	30

7.

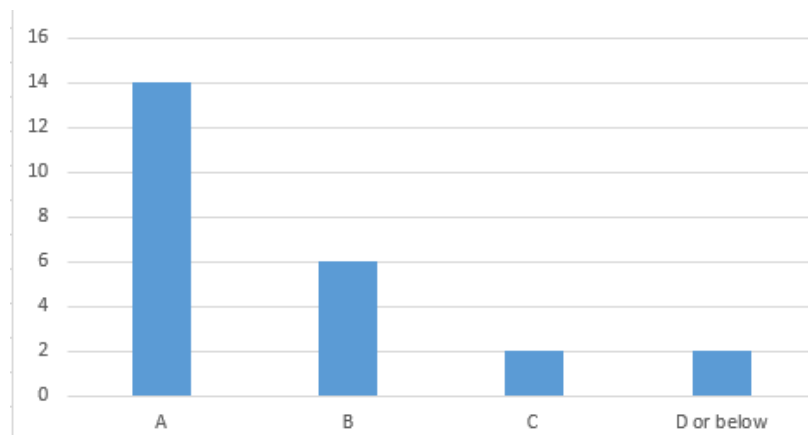
Cola	Fanta	Irn Bru	Lemonade
120	120	280	80

8. Mr Jones is a sales man and his time is divided into “office time”, “travelling time” and “sales call time”. He recorded the information from a week into a bar chart.



Construct a pie chart to show this information.

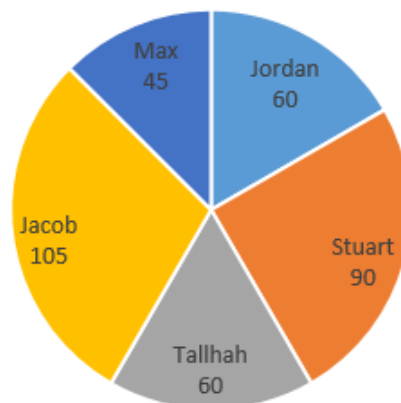
9. Mr Shankland record his results for his National 5 Applications of Maths course in the bar chart below



Construct a Pie Chart for the information above.

The numbers displayed below are the degrees, I appreciate that it is not the typical layout but hope it does not cause confusion.

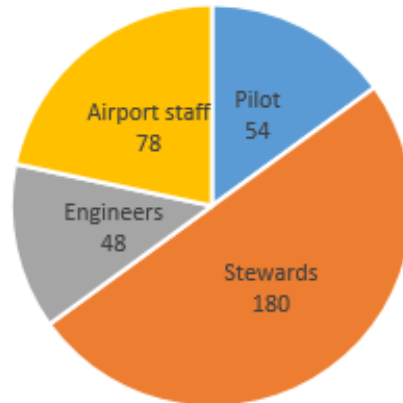
10. A group of students win the lottery. A pie chart is drawn with their names and the degrees that their slice takes up.



If the group won a total of £48,000

- (a) How much did Tallhah win?
(b) How much did Jacob win?

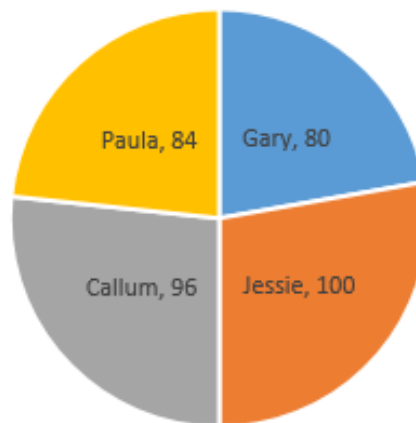
11. An airline makes a pie chart about the different staff that it has on its payroll and displays it below.



If there are 120 employees

- (a) How many Pilots are there?
(b) How many more Airport staff are there than Engineers?

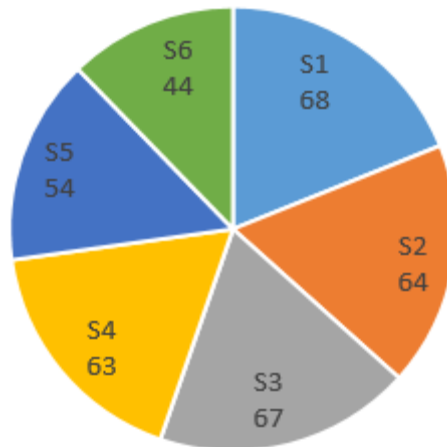
12. Gary, Paula, Callum and Jessie all own a small antique store and share hours working.



If altogether they worked 180 hours,

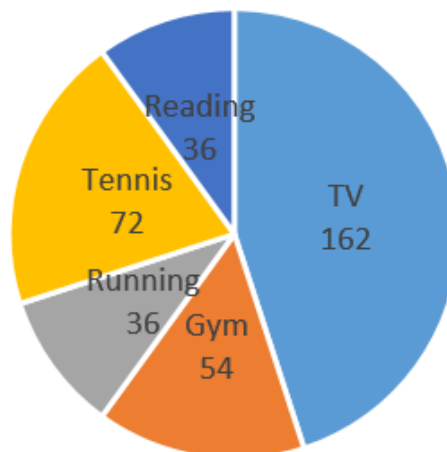
- (a) How many hours did Callum work?
(b) What was the difference between the least and most hours worked?

13. The amount of pupils in each year group is recorded below in a pie chart



Given there are 1800 pupils in the school,
How many pupils are in each year group?

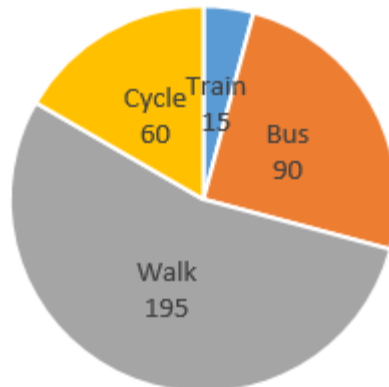
14. Nicole draws a pie chart to show how much time she spends on her hobbies.



Given that she spends 1 hour and 40 minutes a week reading

- (a) Calculate how much time she spends playing Tennis
(b) Calculate how much time she spends watching TV

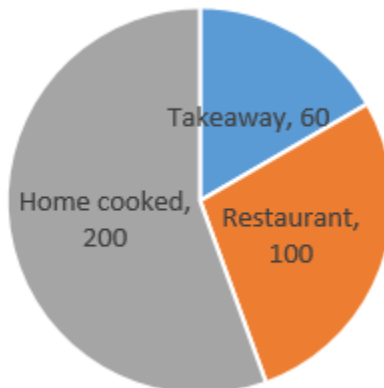
15. A Glasgow based company are trying to reduce their carbon emissions, as part of this they are asking employees not to drive into work. How they get to work is recorded below.



Given that, 20 people get the train

- (a) How many people cycled to work?
- (b) How many people got the bus or walked?
- (c) What percentage got the train or bus? To one decimal place.

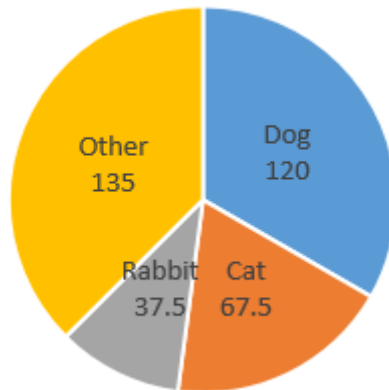
16. An office asks the workers what they had for dinner and the results are recorded below.



Given that 18 employees said takeaway

- (a) How many said home cooked food?
- (b) How many employees are there in total?
- (c) 12 employees were off that day, what is the number of absentees as a percentage?

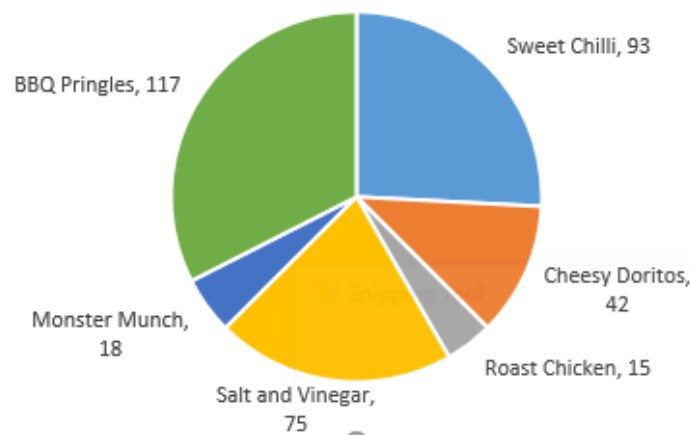
17. A survey is done on the pets that people first had when they were younger. The results are displayed on a pie chart



Given that 80 people said dog

- (a) How many people said rabbit?
 (b) What percentage of people said cat?

18. A survey is done on pupils favourite crisp flavour from a selection. The results are recorded below in a pie chart.



Give 56 pupils said cheesy doritos

- (a) How many said Monster munch?
 (b) How many more pupils said BBQ Pringles than sweet chilli?

Chapter 8: Probability

For Questions 1 - 4 write your answer as a fraction in its simplest form

1. If you write down each letter from the word **APPLICATIONS** and write them on individual bits of paper and pick one a random, what is the probability of getting;
 - (a) A letter P?
 - (b) A vowel?
 - (c) A letter Z?

2. There are different cars in a car park. 5 red, 4 blue, 8 black and 3 white. What is the probability the colour of the next car to leave is car park is;
 - (a) Red?
 - (b) White or Black?

3. In a regular pack of cards there are 52 cards. What is the probability of randomly picking;
 - (a) A four?
 - (b) A red card?
 - (c) A thirteen of clubs?

4. If you roll a 6 sided dice what is the probability of getting a 2?

5. In a jar of sweets there are 12 mints, 18 fudges and 10 raspberry swirls.
 - (a) If you pick one at random what is the probability of getting a raspberry swirl?
 - (b) In another jar there are 8 raspberry swirls out of 35, in which jar does you have a higher probability of picking a raspberry swirl?

6. There are two raffles at a game night. Douglas buys tickets for both. In game 1 Douglas has 3 tickets out of 90 in total
In game 2 Douglas has 5 tickets out of 101.
In which game does Douglas have more chance of winning?

7. In two maths classes pupils were picked to go on a trip
In class A 11 out of 24 got to go
In class B 15 out of 29 got to go
In which class would you have a higher probability of being able to go on the trip?

8. To win a game you must roll two dice and get a number larger than 9.
What is the probability of winning the game?

9. A survey is done on the kinds of hot beverage that customers in a shop order.

Americano	Tea	Mocha	Cappuccino	Latte
35	20	10	12	13

What is the probability that a customer selected at random ordered a tea?

10. If you spin a dial twice with number 1-8 on it, what is the probability the numbers add up to a number less than or equal to 4?
11. Given there are 52 cards in a deck of cards. After removing the ace of spades, what is the possibility of picking out a spade card.
12. If you roll two dice and multiply the answer, what is the probability the number is 6 or less?
13. If you roll a dice and spin the spinner with numbers 1-8. What is the probability that the numbers add up to a number greater than 10?
14. A survey is done on the different colours of cars, vans and lorries that pass down the motorway.

	Black	Red	White
Car	32	14	18
Van	2	4	24
Lorry	30	2	8

What is the probability that a vehicle picked at random is a **White Van**?

15. A staff worker records the types of fuel that people buy and if it was a man or a woman.

	Diesel	Unleaded	Super Unleaded
Man	15	20	22
Woman	13	16	14

What is the probability that a man picked at random buys **Diesel**.

16. To win a game, you must flip a coin and roll a dice. You only win if you
- Get a tails and a 2, or
 - Get a head and a 4 or 5.

What is the probability of winning the game?

17. To win a game, you must flip a coin and spin the dial with numbers 1-10 on it. You only win if you
- Get a tails and an odd numbers
 - Get a head and a 1 or 10.

What is the probability of winning the game?

Answers

Chapter 1: Averages

1. Mean = 20, Range = 21
2. Mean = 76, Range = 22
3. Mean = 150, Range = 100
4. Mean = 34, Range = 17
5. Mean = 30.5, Range = 16
6. Mean = 44, Range = 14
7. Mean = 150, Range = 110
8. Mean = 63.5, Range = 28
9. Mean = 10.7, Range = 8
10. Mean = 21.75, Range = 10

11. Median = 24, Mode = 24
12. Median = 132, Mode = 130
13. Median = 90, Mode = 90
14. Median = 34, Mode = 18
15. Median = 117.5, Mode = 114/120
16. Median = 88, Mode = 86
17. Median = 78, Mode = 90
18. Median = 6.5, Mode = All numbers
19. Median = 418, Mode = 418
20. Median = 28, Mode = 26

- 21a. Not divided by how many, 1.13m
b. Median = 1.12m, Range = 0.17m

- 22a. Mean = 30,
b. 4p per strawberry
c. No as median = 30 and mode = 30

- 23a. Dana found the mode, mean and median = 15
b. Range = 4
c. Range = 4, mean = 17

24. Mean = 6cm, median = 5.75cm,
mode = 5cm, range = 6.5cm

- 25a. Median = 14, mode = 14
b. Mean = 14, range = 17

- 26a. Mean 146, Range = 246
b. £8760

- 27.a 1.25
b. 500 euros

Chapter 2: Comparing Averages

1. Mr McDougall's class had a higher average score by 4 marks, but the scores were more spread out than in Mr McDonalds as the range of scores is 23, compared to 12 in Mr McDonalds. Or Equivalent.
2. The average time for delivery from The Pizzeria is 2 minutes less than deliveries from Pizza Café. Pizza Café has also got a greater spread of times than The Pizzeria by 5 minutes. Or Equivalent.
3. The average price of a suit sold is the same in the two shops. The spread of prices in Slates is much greater than in Top Suits by £24. Or Equivalent.
4. The average price of a house is higher in Area 2 than Area 1 by £30,000. The spread of house prices is 70,000 more in Area 1 than Area 2. Or Equivalent.
5. On average teams in Scottish South East Division more goals than in Scottish South Division. The spread of goals scored in Scottish South Division is greater than in Scottish South East Division. Or Equivalent.
- 6a. Mean = 24400, Range = 6000
b. On average employees in company B are paid £1600 more than in company A. There is less of a spread of wages in company B than company A. Or Equivalent.
- 7a. mean = 143, range = 58
b. On average there are 8 more kids in years groups in Southwood than Westwood. There is a larger variation in the number in pupils in year groups in Southwood than Westwood Or Equivalent.
- 8a. Mean 89.50, Range = 32.25
b. On average groups spend more money in restaurant 2 than restaurant 1. There is a great spread of amounts spent in restaurant 1 then restaurant 2. Or Equivalent.

- 9a. Mean = 102, range = 66
 b. On average members are 6kg heavier in Edinburgh than in Stirling. There is a greater spread of weights in Edinburgh than there is in Stirling. *Or Equivalent.*

Chapter 3: Standard Deviation

1. mean = 40, sd = 6.48
 2. mean = 26, sd = 8.27
 3. mean = 103, sd = 8.87
 4. mean = 75, sd = 20.65
 5. mean = 21, sd = 2.45
 6. mean = 49, sd = 10.71
 7. mean = 92, sd = 2.45
 8. mean = 19, sd = 7.64
 9. mean = 6.5, sd = 1.73
 10. mean = 34.5, sd = 4.99
- 11a. mean = 53, sd = 3.46
 b. John's average time is lower before the training program. But his times are less consistent as the standard deviation is higher. *Or Equivalent.*
- 12a. mean = 324, sd = 43.2
 b. The price of repairs is on average higher in Irvine than in Paisley by £16. The Irvine prices also vary more than the prices in Paisley garage as the standard deviation of the Irvine prices is higher. *Or Equivalent.*
- 13a. Mean = 390, sd = 75.3
 b. On average there are more customers in Café Duex than Café Uno. The number of customers in Café Duex varies more than in Café Uno.
- 14a. Mean = 104, sd = 25.3
 b. Glasgow score more points on average in a game than Edinburgh Kings. Glasgow

are less consistent with the number of points they score than Edinburgh Kings.

- 15a. Mean = 19, sd = 27.4
 b. They have the same average finishing position but Ben is more consistent than Stuart as his finishing positions have a higher standard deviation.

- 16a. Mean = 9560, sd = 1454.1
 b. The average price of a car sold at the garage is higher than the price of a motorbike. The price of the cars sold are more spread out than the price of the motorbikes.

Chapter 4: Five Figure Summary/Box Plots

Box plots have not been drawn to save space but five figure summary's are given for questions.

1. Minimum: 4
 Quartile Q1: 7
 Median: 10
 Quartile Q3: 12
 Maximum: 13
2. Minimum: 22
 Quartile Q1: 24
 Median: 29.5
 Quartile Q3: 32
 Maximum: 39
3. Minimum: 62
 Quartile Q1: 71.5
 Median: 78
 Quartile Q3: 81
 Maximum: 89
4. Minimum: 25
 Quartile Q1: 36
 Median: 52
 Quartile Q3: 67
 Maximum: 80
5. Minimum: 45
 Quartile Q1: 68
 Median: 81
 Quartile Q3: 106
 Maximum: 109
6. Minimum: 1
 Quartile Q1: 3

Median: 4
Quartile Q3: 5
Maximum: 6

7. Minimum: 10
Quartile Q1: 17
Median: 25
Quartile Q3: 49
Maximum: 68

8. Minimum: 126
Quartile Q1: 153
Median: 180
Quartile Q3: 199.5
Maximum: 260

9. Minimum: 12
Quartile Q1: 15.75
Median: 16
Quartile Q3: 17.25
Maximum: 20

10. Minimum: 151
Quartile Q1: 167
Median: 174.5
Quartile Q3: 181
Maximum: 196

11a. Minimum: 126
Quartile Q1: 130
Median: 140
Quartile Q3: 148
Maximum: 155

12a. Minimum: 110
Quartile Q1: 115
Median: 130
Quartile Q3: 137.5
Maximum: 150

b. 8000 Yen
13. Red
Minimum: 0
Quartile Q1: 1.5
Median: 4
Quartile Q3: 9.5
Maximum: 23

Blue
Minimum: 0
Quartile Q1: 1
Median: 4
Quartile Q3: 8
Maximum: 26

14a. Mr Jones class. This can be seen by the lowest and highest numbers being 48 and 90, the same in Mr Jones's class.

b. Minimum: 42
Quartile Q1: 58
Median: 71.5
Quartile Q3: 76
Maximum: 88

15a. Minimum: 8
Quartile Q1: 15
Median: 31.5
Quartile Q3: 40
Maximum: 55

16. Shop 1
Minimum: 24
Quartile Q1: 36.5
Median: 49
Quartile Q3: 50.5
Maximum: 68

Shop 2
Minimum: 25
Quartile Q1: 34
Median: 49
Quartile Q3: 61.5
Maximum: 80

Chapter 5. IQR and SIQR

1. Median = 29, IQR = 20

2. Median = 104, IQR = 5

3. Median = 71, IQR = 37

4. Median = 34.5, IQR = 45

5. Median = 141.5, IQR = 107

6. Median = 67.5, SIQR = 21.5

7. Median = 400, SIQR = 240

8. Median = 142.5, SIQR = 46.25

9. Median = 275, SIQR = 190

10. Median = 2600, SIQR = 2550

11. Median = 13, SIQR = 5

12a. 8, 12, 14, 16, 18, 24, 26

- b. 16
- c. 12

13a. Median = 55, SIQR = 12.5
 b. There is a higher average number of attendees in Dumfries. The spread of attendees is the same in both.

14a. Median = 20,
 b. IQR = 7
 c. Median = 25, IQR = 12
 d. Before the October Holidays on average there were less pupils off. The spread after the holidays is greater than before.

15a. Saturday median = 35 SIQR = 16.5
 b. Sunday median 28.5, SIQR = 11
 c. On average more cars go under the tunnel per hour on a Sunday. There is a greater spread of results on a Saturday than a Sunday

16a. Median = 5.5, IQR = 3
 b. Median would not change
 IQR would increase to 4.5

Chapter 6: Reading Tables

- 1a. 24
- b. 32.1%
- 2a. 3770 euros
- b. 292.50 euros
- c. Monday

- 3a. 8 pupils
- b. $\frac{1}{5}$
- c. 4:1

4a. 1.5 degrees between Tuesday and Wednesday
 b. 8 degrees

- 5a. 3450
- b. Green, Blue and Red
- c. £300

- 6a. 600 units
- b. £306,000

7a. English, (Maths is extremely close)
 b. 78%

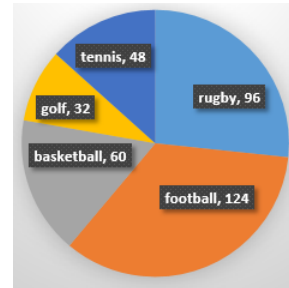
8a. 100 euros

b. \$918.75

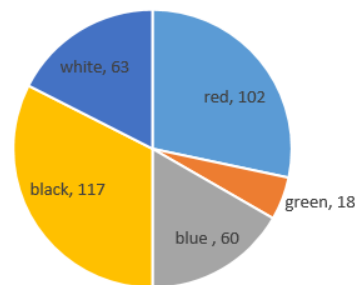
Chapter 7: Pie Charts

Pie charts are shown with label and degrees.

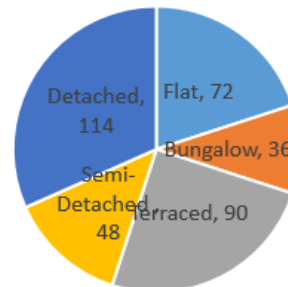
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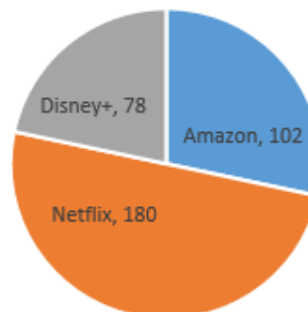
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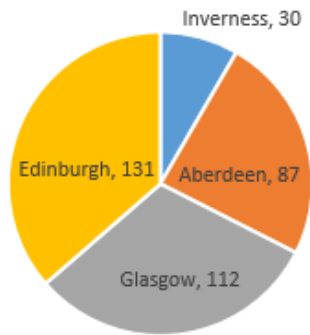
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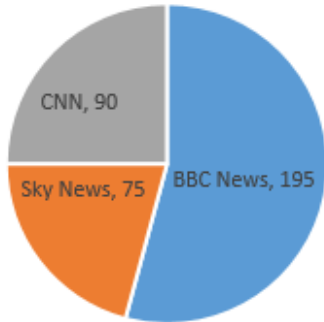
4.



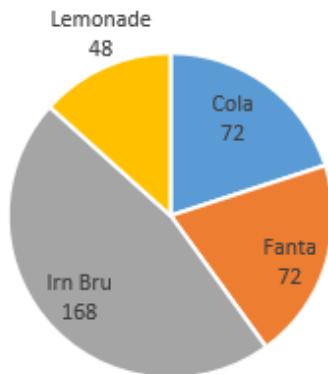
5.



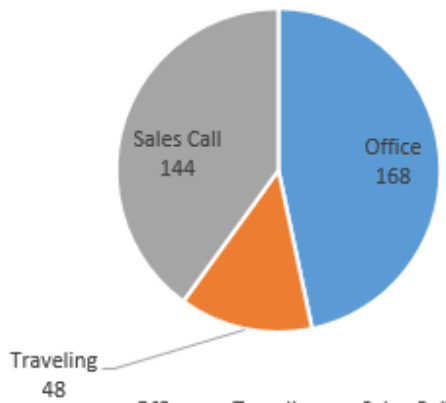
6.



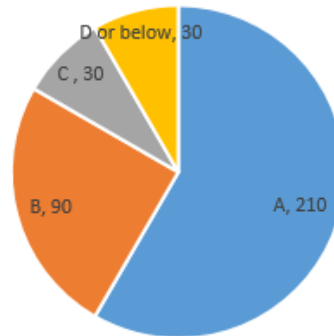
7.



8.



9.



10a. £8000

b. £14000

11a. 18

b. 10

12a. 48 hours

b. 10 hours

13 S1 - 340, S2 - 320, S3 - 335, S4 - 315, S5 - 270, S6 - 220

14a. 3 hours and 20 minutes

b. 7 hours and 30 minutes

15a. 80

b. 380

c. 21.9%

16a. 60

b. 108

17a. 25

b. 18.75%

18a. 24

b. 32

Chapter 9: Probability

1a. $\frac{1}{6}$

b. $\frac{5}{12}$

c. 0

2a. $\frac{1}{4}$

b. $\frac{11}{20}$

3a. $\frac{1}{13}$

b. $\frac{1}{2}$
c. 0

4. $\frac{1}{6}$

5a. $\frac{1}{4}$

b. In the first jar, 0.25 and 0.22

6. Game 1: 0.03, Game 2: 0.05, Game 2 higher

7. Class A 0.45, Class B 0.52. Class B has higher probability.

8. $\frac{1}{6}$

9. $\frac{2}{9}$

10. $\frac{3}{32}$

11. $\frac{12}{51}$

12. $\frac{5}{18}$

13. $\frac{5}{24}$

14. $\frac{12}{67}$

15. $\frac{5}{19}$

16. $\frac{1}{4}$

17. $\frac{7}{20}$