Edexcel - Foundation

Statistics

2022 GCSE Advance Information

Sparx Topics & Key Questions

We are always looking for ways to support maths teachers and students. In order to help you and your year 11s this year we've pulled together a list of key questions which may be useful to practise with your students based on the exam board topic lists.

These 29 key questions are all taken from our library of over 45,000 high-quality questions in Sparx Maths. If you are a Sparx Maths School then your students can use the Topic Codes provided to search the full content library directly within the independent learning section of Sparx Maths to help target their revision.

Please note this is not an exhaustive topic guide it is simply designed to help you pull together some key questions to use to check for understanding in lessons, starters, or as worksheets with your learners.

Statistics	Topics	Sparx Topic Codes
Diagrams	Bar chart	U363, U557
	Interpret graph	U193, U277
	Two-way table	U981
	Frequency table	U981, U312
	Stem and leaf diagram	U200, U909
	Frequency polygon	U840
Measures	Mode, median, mean, range	U569, U854, U456, U291, U877, U526
Population	Comparison of distributions	U520

Diagrams - Bar chart

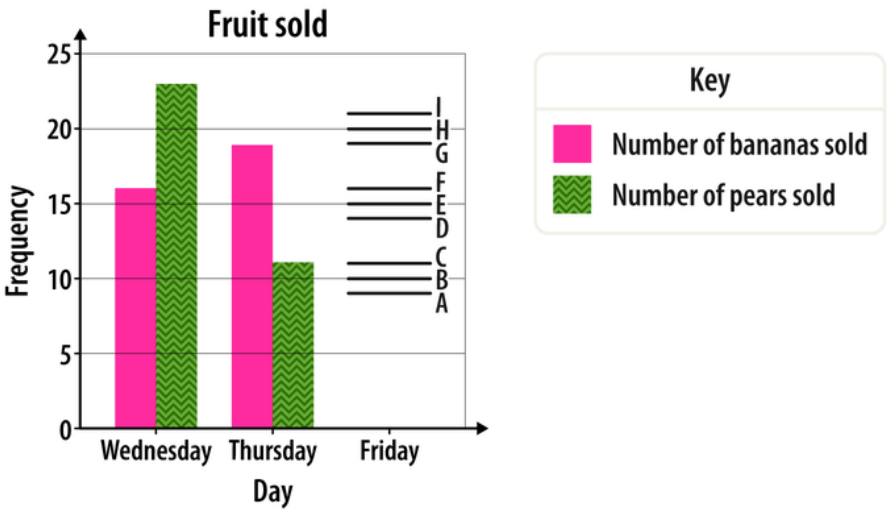
Drawing bar charts U363

The data below is plotted on a dual bar chart, but two bars are missing.

Day	Bananas Sold	Pears Sold
Wednesday	16	23
Thursday	19	11
Friday	9	15

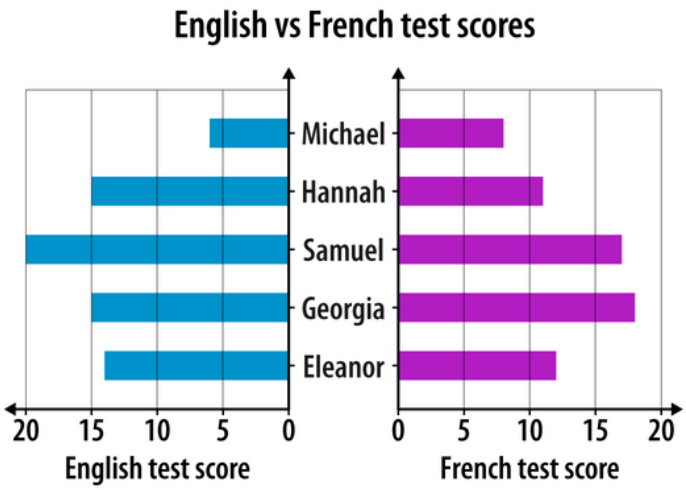
Select the letter that shows the height of the missing bar for

a) the number of bananas sold.
b) the number of pears sold.



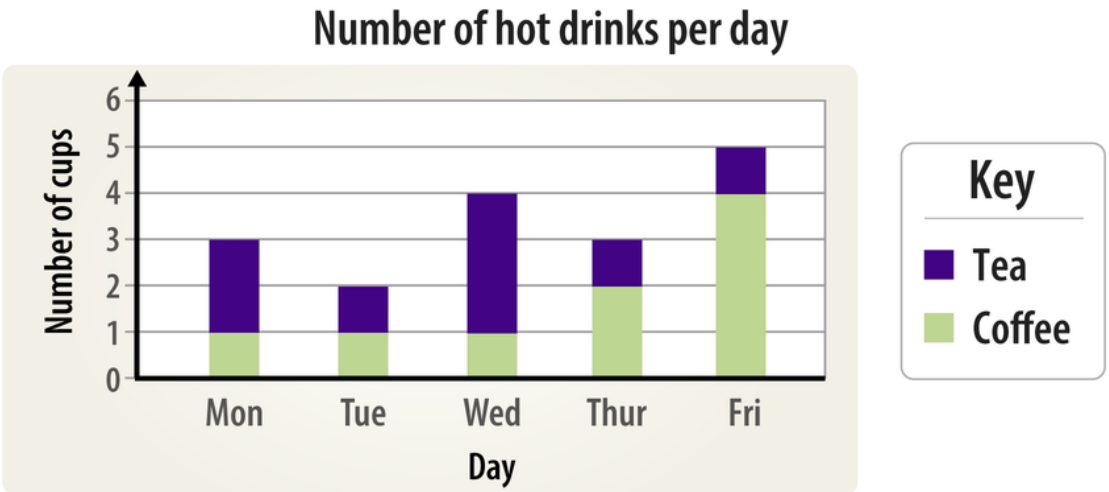
Which people`s scores on the bar chart do **not** match the data given in the table?

	English test score	French test score
Michael	6	8
Hannah	15	11
Samuel	20	17
Georgia	18	15
Eleanor	12	14



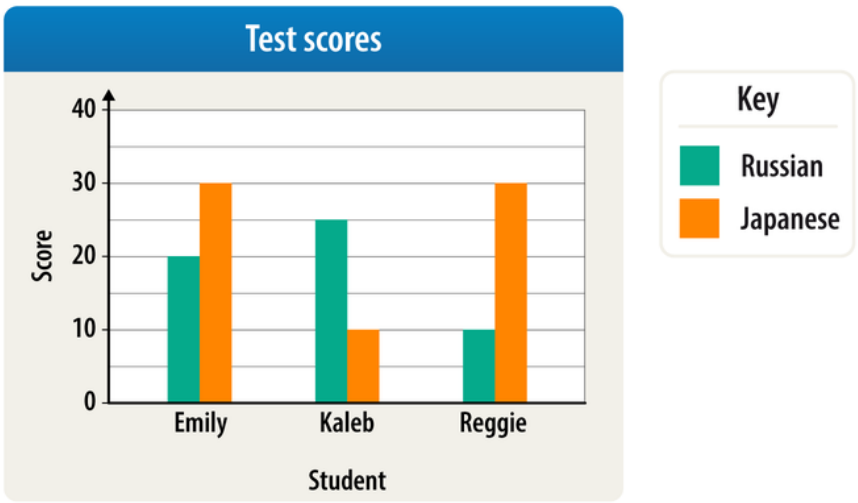
Interpreting bar charts U557

Use the stacked bar chart to work out the number of cups of **tea** drunk on **Monday**.



a) Which person had the largest difference between their test scores?

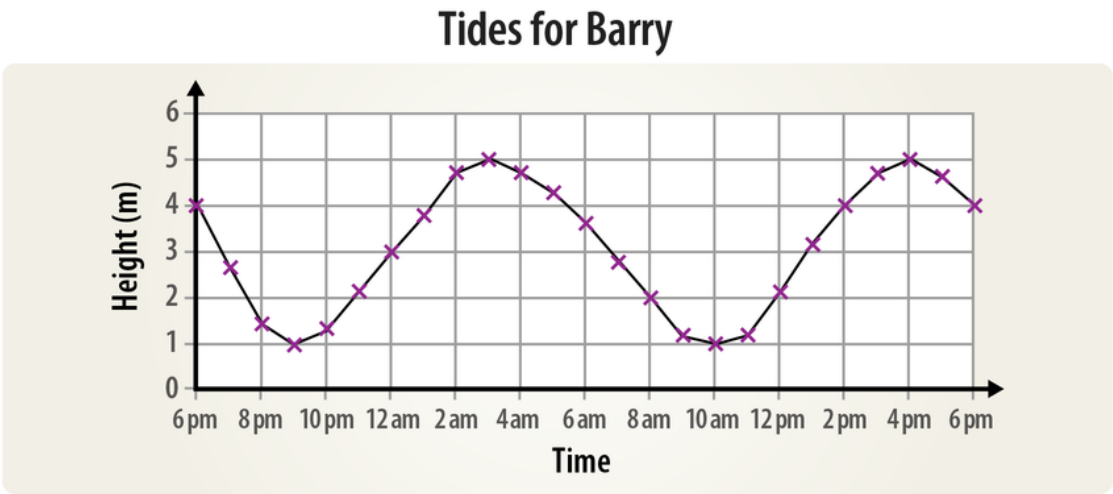
b) What was this difference?



Diagrams - Interpret graph

Interpreting line graphs U193

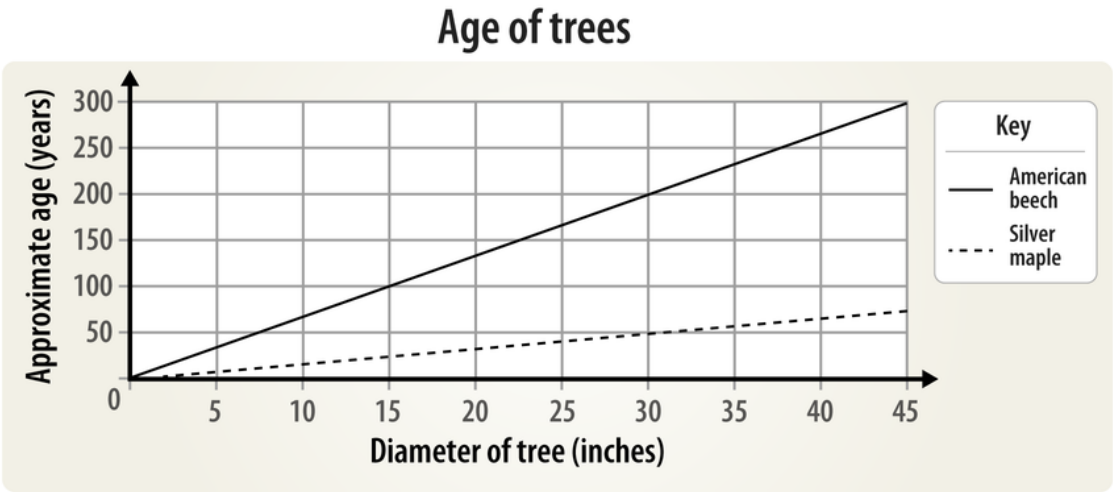
How many hours apart were the two maximum recorded tide heights in Barry?



This graph shows the relationship between trunk diameter and age for two species of tree.

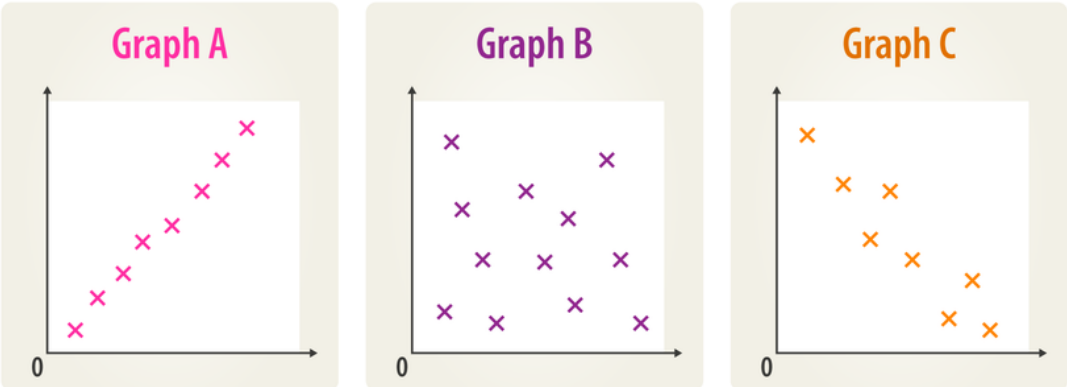
A gardener measures an American beech and a silver maple and finds that they each have a diameter of 30 inches.

Use the graph to approximate how many years older the American beech is than the silver maple.



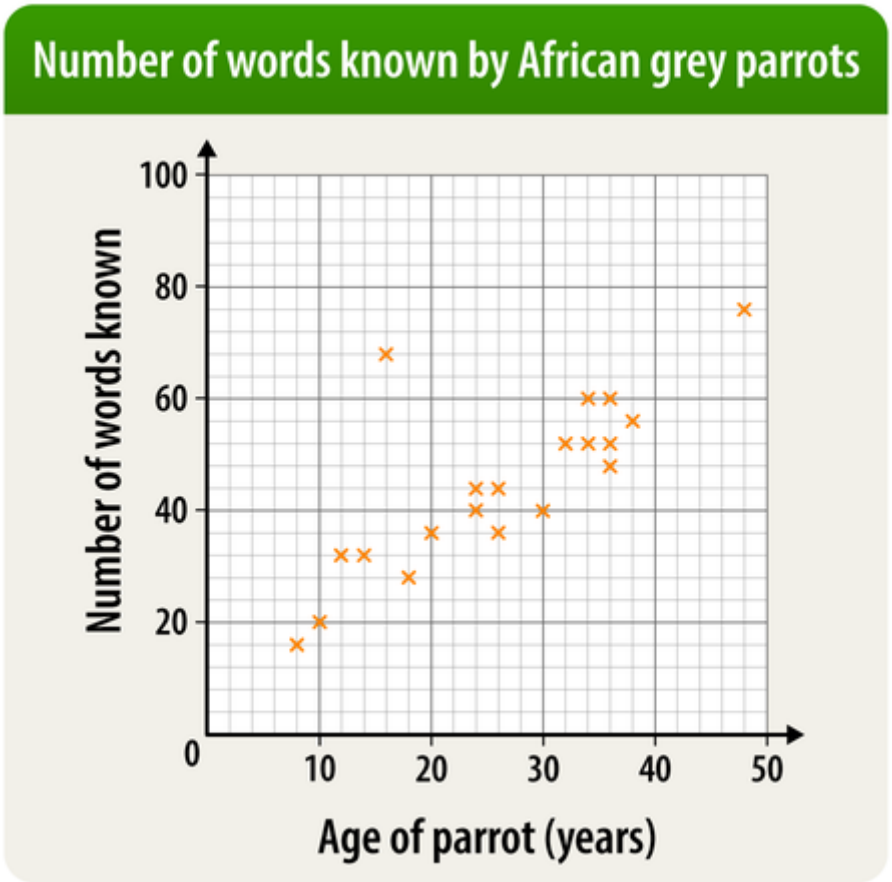
Interpreting scatter graphs U277

For each of the graphs below, write down whether it shows positive correlation, negative correlation or no correlation.



In the scatter graph below, the data point for one of the parrots is an outlier.

Write down the age of this parrot, in years, and the number of words that it knows.



Diagrams - Two-way table

Interpreting frequency tables and two-way tables U981

The flavours of 60 ice creams sold by a cafe are recorded in the table below, but one of the frequencies is missing.

Flavour	Frequency
Chocolate	11
Strawberry	
Vanilla	25
Caramel	6

Work out how many strawberry ice creams were sold.

The table shows how many medals some countries won in a sports contest.

Which of these countries won the **most** medals in total?

	France	Brazil	India
Bronze	15	6	10
Silver	2	4	14
Gold	11	12	6

Diagrams - Frequency table

Interpreting frequency tables and two-way tables U981

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Interpreting frequency tables with grouped data U312

The table below shows information about the heights of the trees in a park.

How many of the trees are more than 10 m tall but not more than 20 m tall?

Height, h (m)	Frequency
$0 < h \leq 5$	5
$5 < h \leq 10$	9
$10 < h \leq 15$	13
$15 < h \leq 20$	5
$20 < h \leq 25$	1

The table below shows information about the distance walked by some hikers.

a) Work out the **minimum** number of hikers who could have walked between 8 miles and 19 miles.

b) Work out the **maximum** number of hikers who could have walked between 8 miles and 19 miles.

Distance, x (miles)	Frequency
$0 \leq x < 5$	3
$5 \leq x < 10$	4
$10 \leq x < 15$	7
$15 \leq x < 20$	6
$20 \leq x < 25$	1

Diagrams - Stem and leaf diagram

Drawing stem-and-leaf diagrams U200

The number of people visiting a cafe each day for 12 days is listed below.
This information is displayed in the stem-and-leaf diagram.

Fill in the missing row of the stem-and-leaf diagram.

Number of people			
103	92	95	112
98	108	117	91
110	119	97	114

Number of people visiting a cafe each day for 12 days

9	1 2 5 7 8
10	3 8

Key	
9|1	represents 91 people

Jacob measures the heights of 14 plants in his garden and the results are listed below.

Draw an ordered stem-and-leaf diagram to display this information.

Height (mm)				
155	173	176	154	168
189	151	153	162	174
153	176	183	183	

Interpreting stem-and-leaf diagrams **U909**

Henry recorded how many cupcakes he sold each day in his bakery in this stem-and-leaf diagram.

On how many days did he sell at least 30 but fewer than 40 cupcakes?

Cupcake sales

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

Key
1 | 7 represents 17 cupcakes

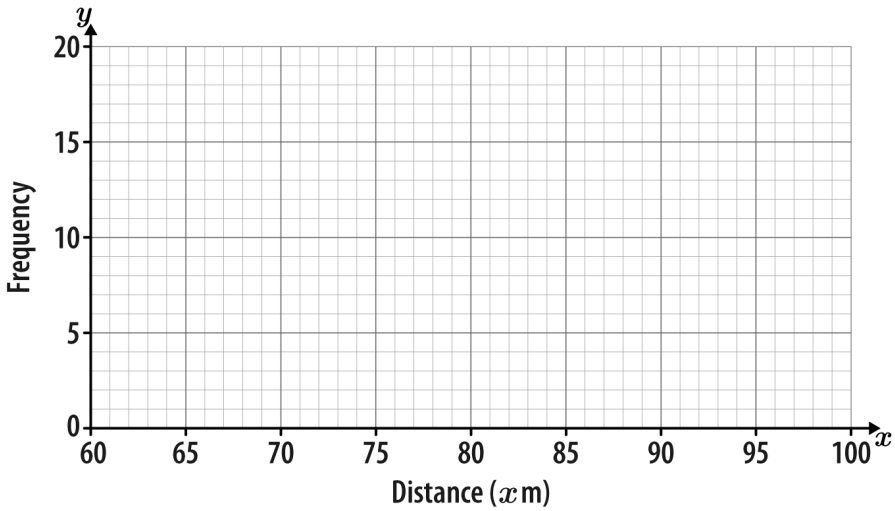
Diagrams - Frequency polygon

Drawing and interpreting frequency polygons U840

This table shows information about the javelin throws in a competition.

Distance (x m)	Frequency
$60 < x \leq 70$	9
$70 < x \leq 80$	11
$80 < x \leq 90$	16
$90 < x \leq 100$	4

Copy the axes below.
On your axes, draw a frequency polygon to show the information in this table.



Measures - Mode, median, mean, range

Finding averages from frequency tables U569

William rolled a dice 25 times and recorded how many times it landed on each number in the frequency table below. What was the modal score?

Score	Frequency
1	4
2	1
3	8
4	3
5	4
6	5

The results from a survey about the number of siblings a group of people have are shown in the table below.

What is the **median** number of siblings?

Number of siblings	Frequency
0	3
1	1
2	7
3	5
4	9

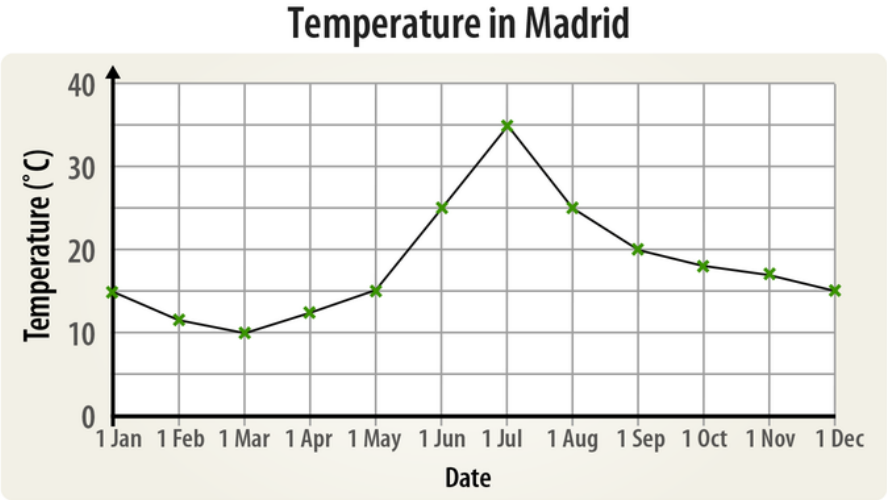
A survey asked a group of people how many chocolate bars they eat each week.
The results from the survey are shown in the table below.

What is the **mean** number of chocolate bars eaten?
Give your answer as a decimal.

Chocolate bars eaten	Frequency
3	9
4	18
5	13

Finding averages from diagrams **U854**

What was the **range** of the recorded temperatures in Madrid?



The long jump lengths for some members of an athletics club are recorded in this stem-and-leaf diagram.

What is the **median** jump length?
Give your answer in metres (m).

Long jump lengths

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

Key

1 | 7 represents 1.7 m

Calculating the median U456

Work out the median of these numbers:

$$1, \quad 7, \ -11, \quad 6, \ -6, \quad 11$$

Calculating the mean U291

The **mean** of the number cards below is 5.
a) What is the total of all three cards?
b) What number should replace the question mark?

Estimating the mean from grouped data U877

The table below shows information about the thickness of each of the books on a shelf.

Work out an estimate for the mean book thickness.
Give your answer as a decimal.

Thickness, x (mm)	Frequency
$0 < x \leq 2$	4
$2 < x \leq 4$	9
$4 < x \leq 6$	7

Calculating the range U526

Calculate the range, in centimetres (cm), of the following lengths:

$15\,\text{cm}, \quad 0.5\,\text{cm}, \quad 10.3\,\text{cm}, \quad 16.7\,\text{cm}, \quad 21\,\text{cm}, \quad 8.6\,\text{cm}$

The range of a set of numbers is 7.

The maximum value is 3.

What is the **minimum** value?

Population - Comparison of distributions

Comparing populations using diagrams U520

The chart below shows how many TVs two different shops sold last week.

a) Which shop sold a higher mean number of TVs per day?

b) Use your answer to part a) to work out how many more TVs this shop sold on average per day.