

Week 22

Graphs

Name: _____

Class: _____

Date: _____

Time: **39 minutes**

Marks: **38 marks**

Comments:

1

This table shows the heights of three mountains.

Mountain	Height in metres
Mount Everest	8,848
Mount Kilimanjaro	5,895
Ben Nevis	1,344

How much higher is Mount Everest than the combined height of the other two mountains?

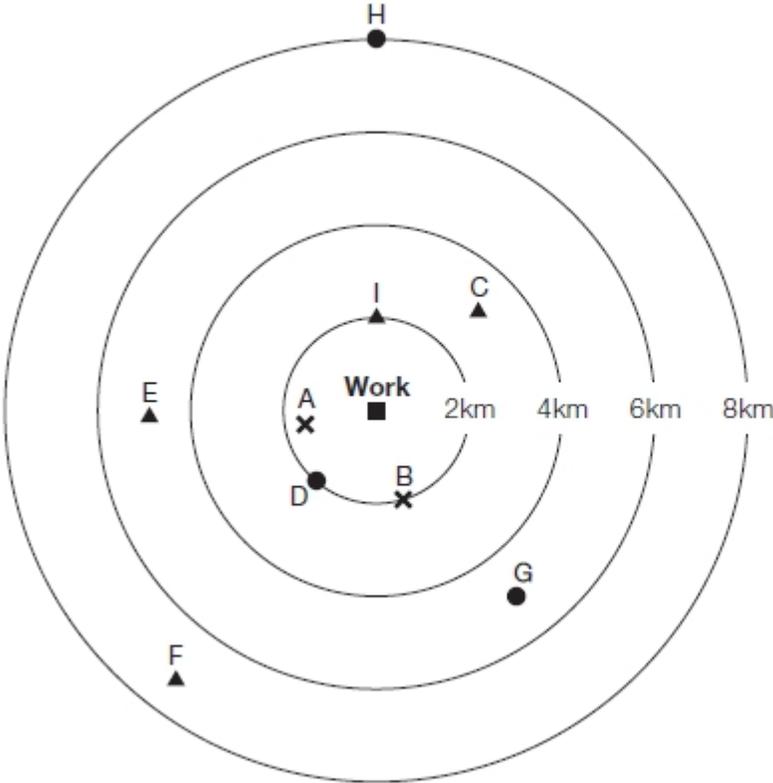
Show your method

m

2 marks

2

This diagram shows how nine people travel to work and how far away they live.



Key:
x walk
▲ bus
● cycle

How many people live **more** than 4 km from work?

people

1 mark

How far from work does person **G** live?

km

1 mark

Write the letter of the person who lives 2 km from work and cycles.

1 mark

3

Chris did a survey of the number of people who went into shops in one hour.



Number of people who went into a shop + stands for 5 people	
Shoe shop	++++ +++++ ++
Newsagent	
Post Office	++++ +++++ +++++ +++++ ++
Bread shop	++++ +++++
Supermarket	++++ +++++ +++++ ++

How many people went into the **Supermarket** in the hour?

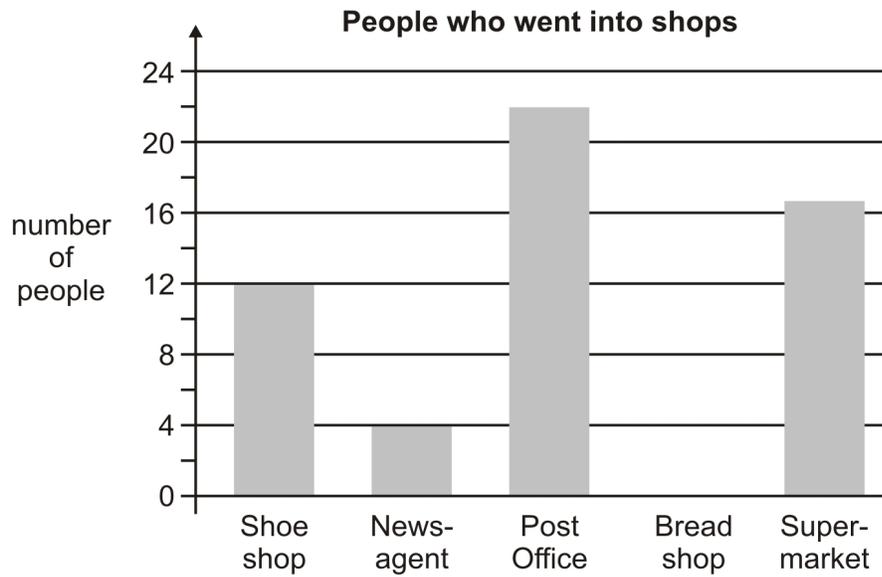
1 mark

How many **more** people went into the **Post Office** than the **Shoe shop**?

1 mark

Here is part of a bar chart of the information.

Draw in the **missing** bar.



1 mark

4

Here is a diagram for sorting numbers.

Write **one number** in each box.

One is done for you.

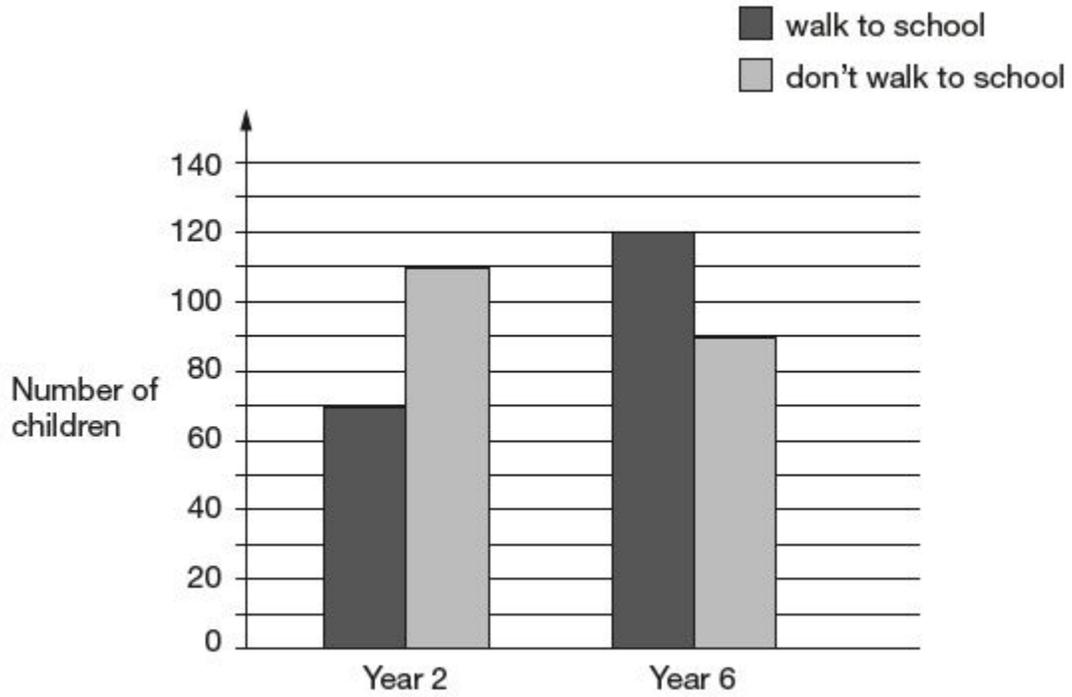
	multiple of 5	not a multiple of 5
multiple of 3	30	
not a multiple of 3		

2 marks

5

William asks the children in Year 2 and Year 6 if they walk to school.

This graph shows the results.



Altogether, how many children **don't** walk to school?

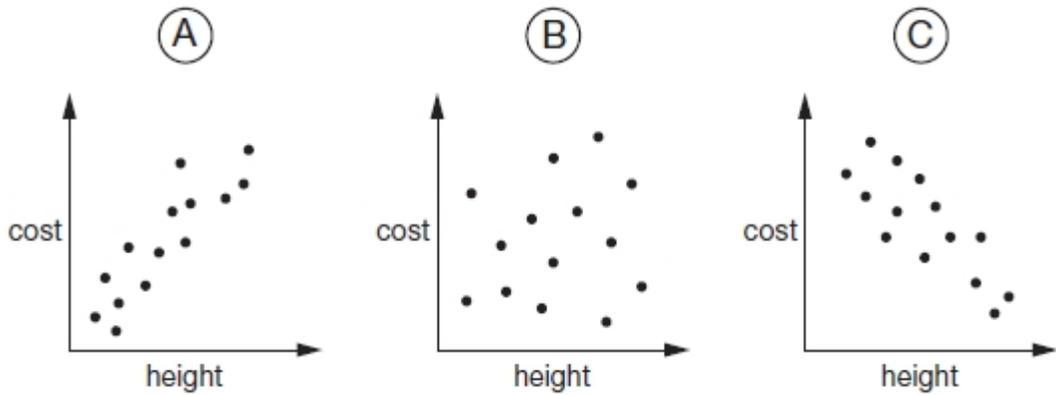
1 mark

How many **more** Year 6 children than Year 2 children walk to school?

1 mark

6

Here are three scatter graphs showing the heights of people and the cost of clothes.



Chen says,

'The taller you are, the more your clothes cost.'

Megan says,

'The shorter you are, the more your clothes cost.'

Alfie says,

'There is no relationship between your height and what your clothes cost.'

Write the letter of each scatter graph that shows what each person says.

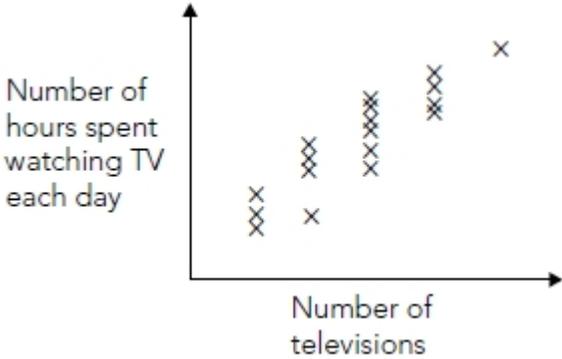
Chen _____ Megan _____ Alfie _____

1 mark

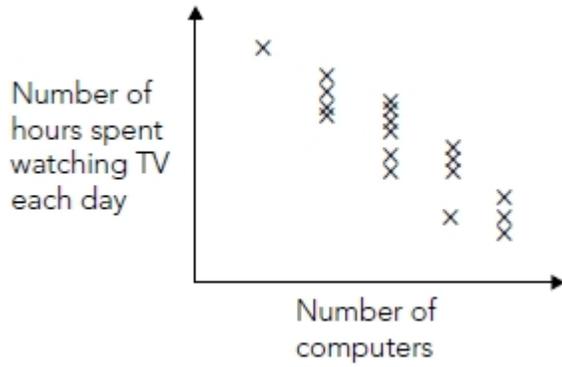
7

Here are three scatter diagrams, labelled A, B and C.

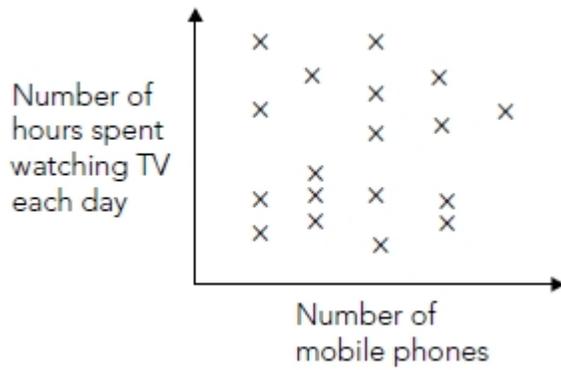
Scatter diagram A



Scatter diagram B



Scatter diagram C



Kemi writes:

Scatter diagram **A** shows that the more televisions a person has in
their home the more hours they spend watching television

Now complete the sentences below.

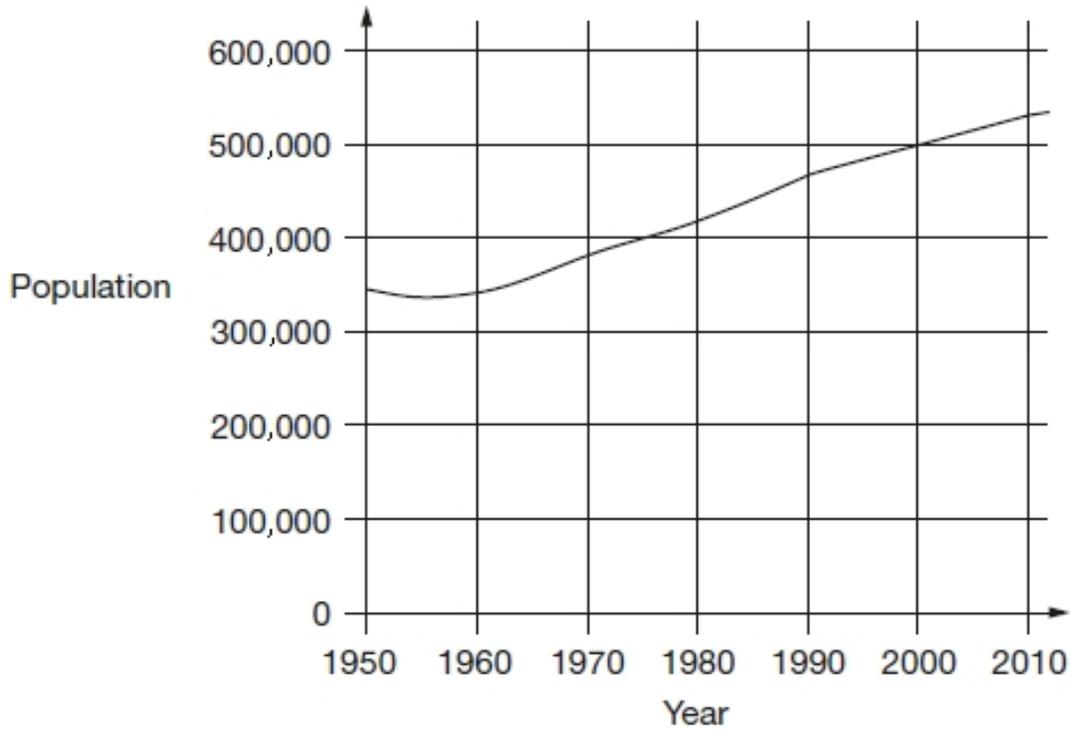
Scatter diagram **B** shows that _____

Scatter diagram **C** shows that _____

1 mark

8

This chart shows the population of Cornwall from 1950 to 2010.



Look at the chart.

In which year did the population first reach 400,000?

1 mark

How much did the population increase from 1950 to 2000?

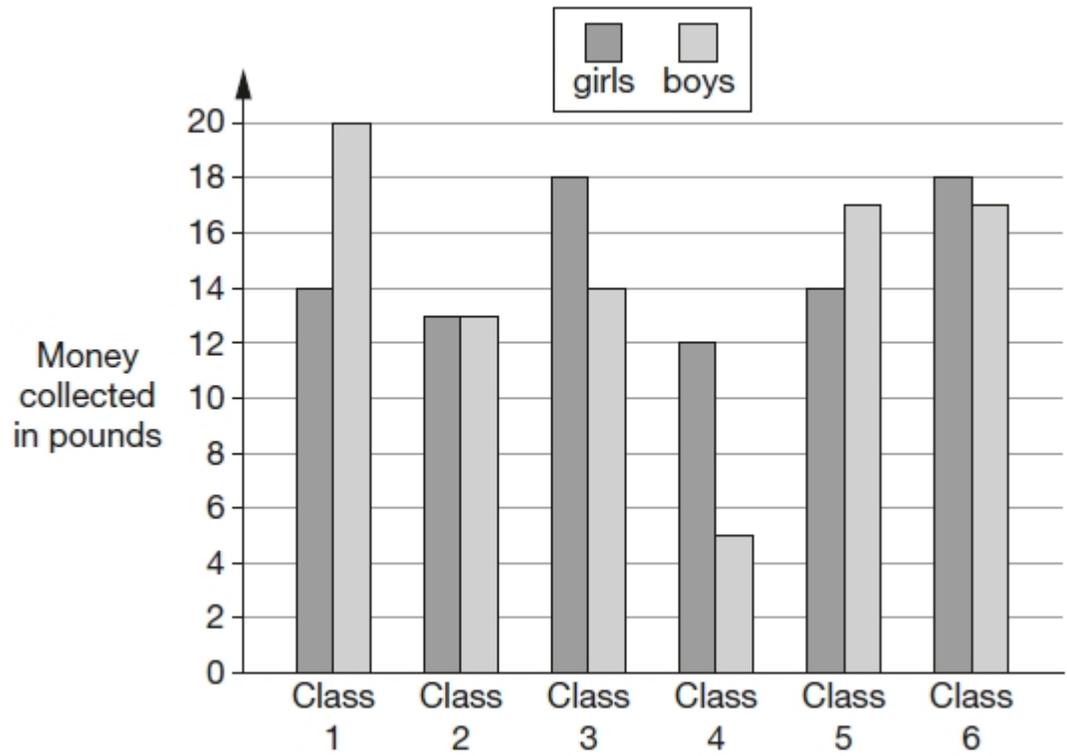
1 mark

What was the population of Cornwall in 2010?

1 mark

9

Six classes at Winward Primary School collected some money.
The chart shows how much money the boys and girls collected.



In Class 4, how much more money did the girls collect than the boys?

1 mark

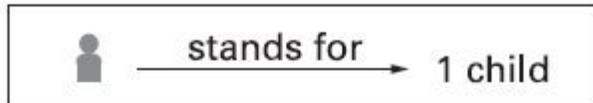
How many classes collected more than £30?

1 mark

10

Some children in Class 4 are in a club.

This table shows the club they are in.



club	number of children
recorder	
chess	
computer	

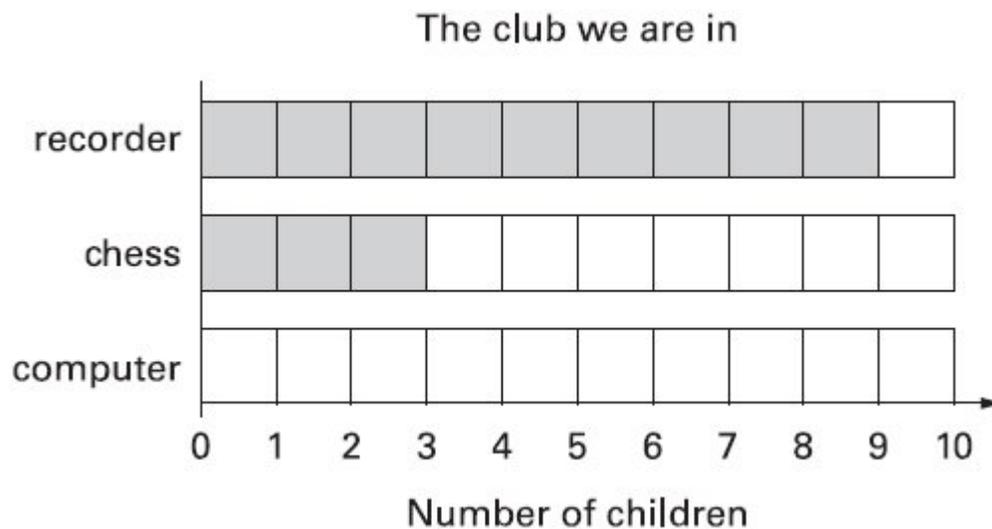
How many **more** children go to recorder than chess?

children

1 mark

This graph should show the same **data** as the table.

Shade in the correct number of blocks for **computer club**.



1 mark

11

On Monday all the children at Grange School each play one sport.

They choose either hockey or rounders.



There are **103** children altogether in the school.

27 girls choose hockey.

Write all this information in the table.

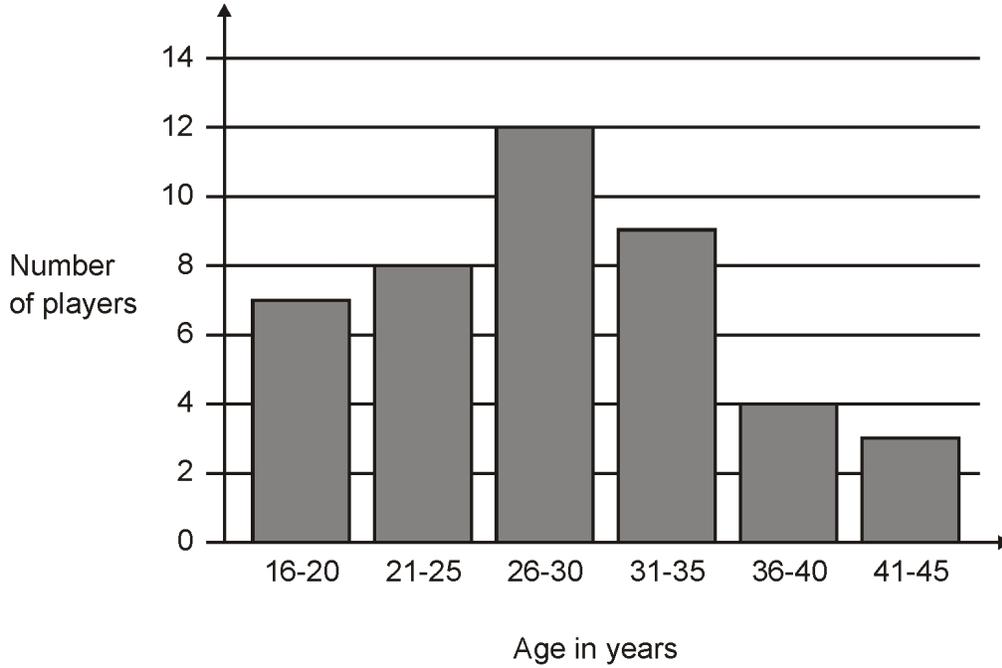
Then complete the table.

	hockey	rounders	Total
boys	22		
girls			53
Total			

2 marks

12

This graph shows the age of players at a football club.



How many players are aged 30 or younger?

1 mark

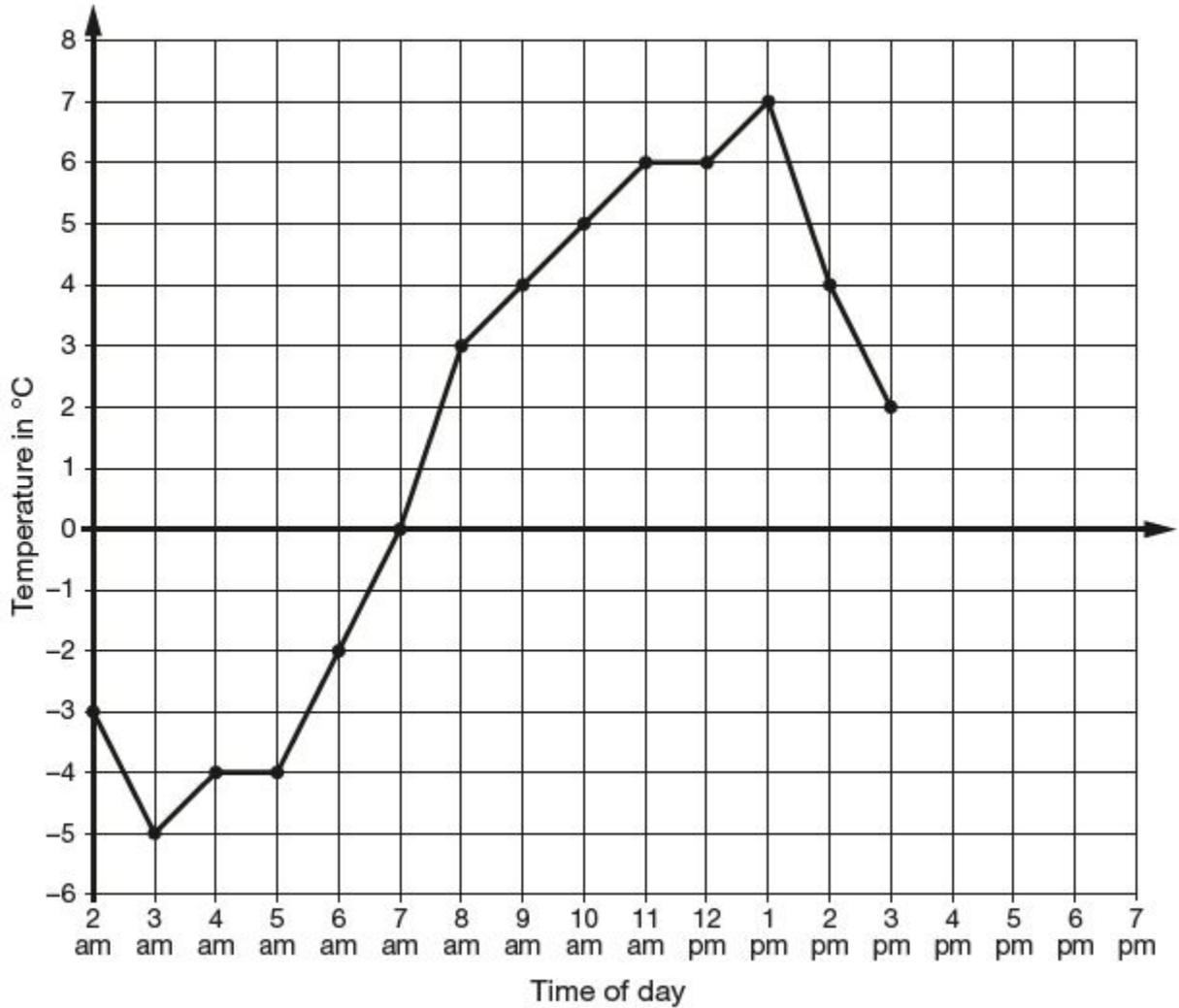
A player aged 36 and a player aged 39 join the club.

Add this information to the graph above.

1 mark

13

This graph shows the temperature in °C from 2 am to 3 pm on a cold day.



How many degrees **warmer** was it at 3 pm than at 3 am?

1 mark

At 6 pm the temperature was 4 degrees lower than at 3 pm.

What was the temperature at 6 pm?

1 mark

14

Here is information about pupils in a class.

- The total number of pupils is 30
- 26 of the pupils do not wear glasses.
- A quarter of the pupils who do wear glasses are boys.
- There are 2 more boys than girls.

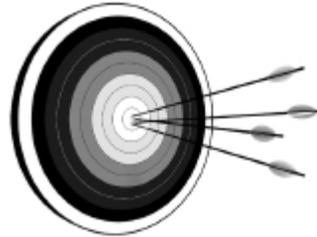
Use the information to fill in the missing numbers in the table below.

	Number who do wear glasses	Number who do not wear glasses	Total
Number of boys			
Number of girls			
Total			30

2 marks

15

Archery is an Olympic sport.



In 2008, two archers called Park and Zhang were in the women's final.

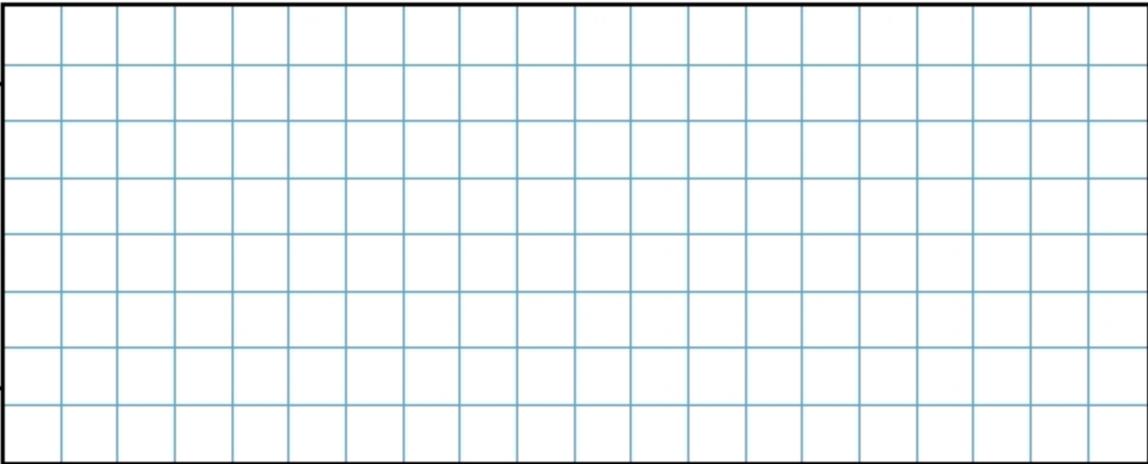
Both archers shot **12 arrows**.

Zhang won the final **by 1** point.

Complete the table for Zhang below.

You can use the space to show your calculations.

Show your method



Name of archer: Park	
What she scored with her 12 arrows	
Number of points	Frequency
7	0
8	4
9	3
10	5

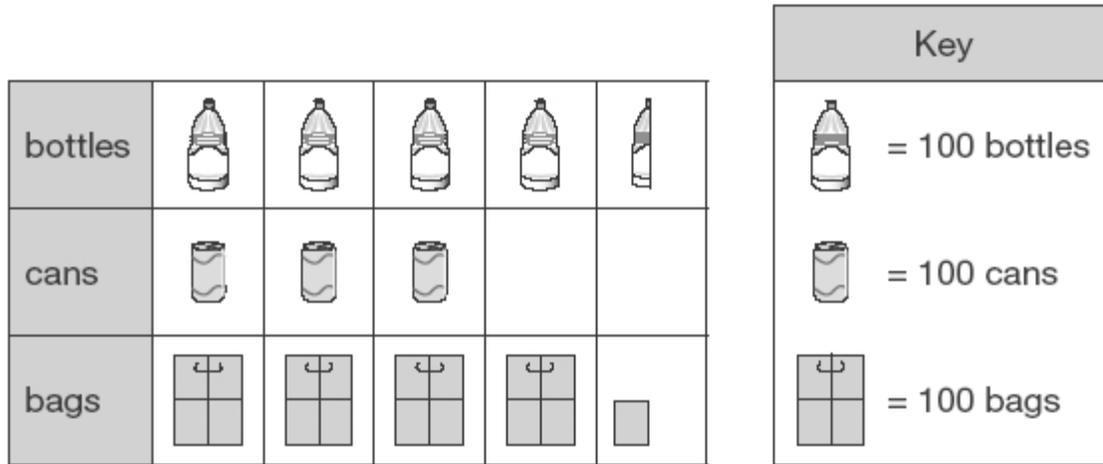
Name of archer: Zhang	
What she scored with her 12 arrows	
Number of points	Frequency
7	1
8	0
9	
10	

2 marks

16

Class 6 collect litter from a park.

This chart shows some of the litter they have collected so far.



How many bottles have Class 6 collected?

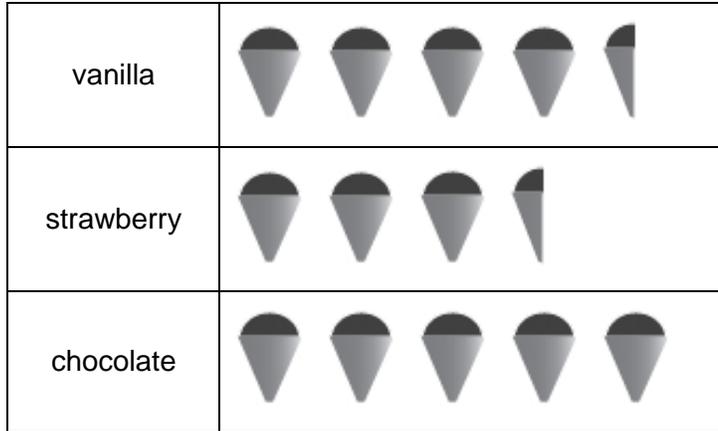
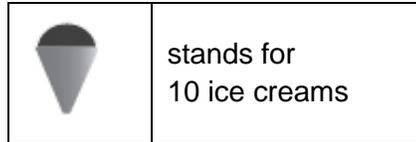
1 mark

How many **more** bags than cans have they collected?

1 mark

17

This pictogram shows the number of ice creams a shop sold in one day.



How many **more** chocolate than strawberry ice creams were sold?

1 mark

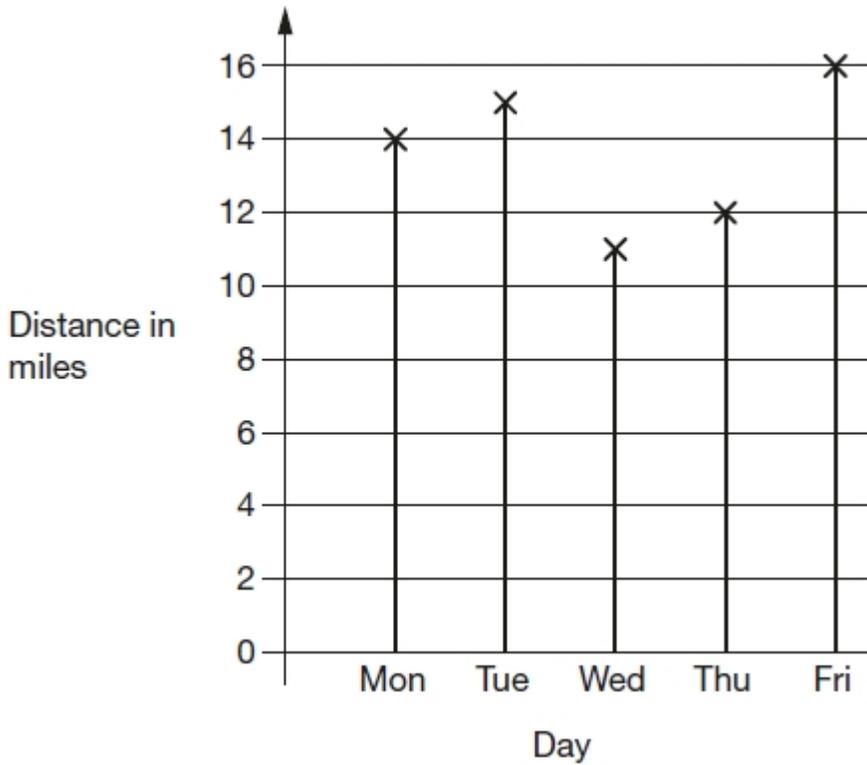
How many ice creams were sold **altogether**?

1 mark

18

Amy went on a cycling holiday.

This chart shows how far she cycled each day.



How much **further** did Amy cycle on Friday than on Wednesday?

1 mark

How far did Amy cycle **altogether** on the three days she cycled the most?

1 mark

Mark schemes

1

Award **TWO** marks for the correct answer of 1,609

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- $5,895 + 1,344 = 7,239$
 $8,848 - 7,239$

*Answer need not be obtained for the award of **ONE** mark.*

Up to 2m

[2]

2

(a) 4

1

(b) Gives an answer in the range $4\frac{1}{2}$ km to $5\frac{1}{2}$ km exclusive.

Do not accept $4\frac{1}{2}$ OR $5\frac{1}{2}$

1

(c) D

1

[3]

3

(a) 17

1

(b) 10

1

(c) Bar drawn to 13

*Accept bars greater than 12 and less than 14
 Accept unshaded bar or line.*

1

[3]

4 Award **TWO** marks for three boxes completed correctly, e.g:

	multiple of 5	not a multiple of 5
multiple of 3	30	3, 6, 9 etc
not a multiple of 3	5, 10, 20 etc	1, 2, 4, 7 etc

If the answer is incorrect, award **ONE** mark for at least two boxes completed correctly.

Accept more than one correct multiple in any box.

Do not accept any box containing a correct multiple and an incorrect number.

Up to 2

[2]

5 (a) 200

1

(b) 50

1

[2]

6 Identifies all three graphs correctly, ie:

- Chen **A** Megan **C** Alfie **B**

Accept unambiguous indications of the correct graph for each person, eg:

- Names written on scatter graphs*

[1]

7 Gives a correct description for B that shows or implies the link between the two variables

eg

- The more computers a person has in their home, the fewer hours they are likely to spend watching television
- There is negative correlation between the number of hours watched and the number of computers in the home
- If you have lots of computers you don't tend to watch TV much

Accept minimally acceptable description

eg

- *More computers, less watching*
- *Fewer computers, more TV*
- *More television, less computers*
- *LessTV, more computers*
- *Negative correlation*

! Number of hours watching interpreted incorrectly as number of televisions

Condone

eg, for the first mark accept

- *The more computers people have, the fewer TVs they have*

Do not accept *incomplete description*

eg

- *If you have one computer you watch more TV*

1

Gives a correct description for C that states or implies that the two variables are not linked

eg

- How much television a person watches is independent of the number of mobile phones they have
- There is no correlation between the number of hours watched and the number of phones
- Time watching is not dependent on the amount of mobiles
- People with lots of mobile phones don't necessarily watch any more than those with just one

Accept minimally acceptable description

eg

- *Mobiles don't affect watching*
- *No correlation*
- *Not connected*
- *No relationship*
- *No link*
- *No pattern*
- *It's random*
- *More or less phones won't affect hours*
- *Number of mobiles doesn't affect the situation*
- *Someone watching 1 hour of TV might have as many mobiles as someone who watches 8 hours [generality implied]*
- *How much is watched depends on the person not on their mobile phones*

Do not accept incomplete description

eg

- There is a range of numbers of mobile phones and the number of hours spent watching TV

- It doesn't make much difference

! Description of graph's appearance

Accept alongside a correct response

eg, for C accept

- It's all spread out so there is no link

eg, for C do not accept

- It's all spread out

1

[2]

8

(a) 1974 **OR** 1975 **OR** 1976

1

(b) A whole number answer in the range 130 000 to 180 000 **inclusive**.

1

(c) A whole number answer in the range 510 000 to 550 000 **exclusive**.

Do not accept 510 000 **OR** 550 000

1

[3]

9

(a) £7

Accept an answer in the range £6.75 to £7.25 inclusive.

1

(b) 4

Do not accept a list of classes.

1

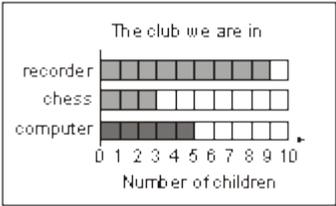
[2]

10

(a) 6

1

(b) Graph completed as shown:



The blocks need not be shaded. Accept any other clear way of indicating the correct number of blocks, such as ticking or circling.

1

[2]

11

Award **TWO** marks for all seven boxes completed correctly as shown:

	hockey	rounders	Total
boys	22	28	50
girls	27	26	53
Total	49	54	103

If the answer is incorrect, award **ONE** mark for five or six boxes completed correctly.

Up to 2 (U1)

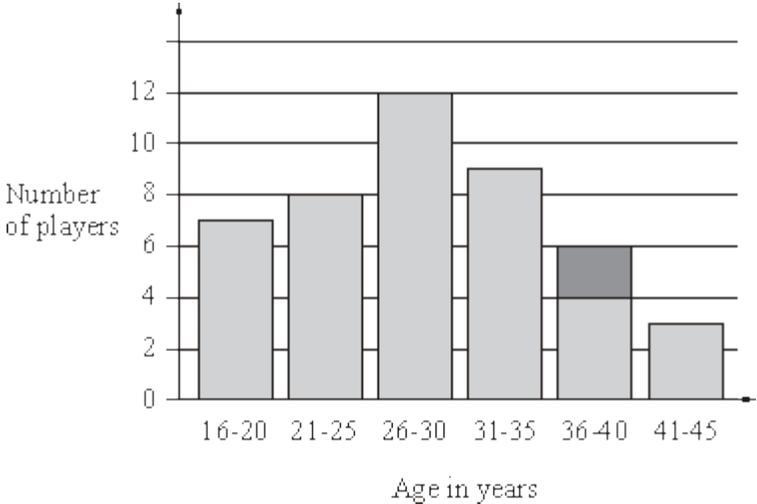
[2]

12

(a) 27

1

(b) Graph completed as shown:



*Accept slight inaccuracies in drawing provided the intention is clear.
Bar need not be shaded.*

1

[2]

13

(a) 7

1

Do not accept -7 or 7-

(b) -2

1

Do not accept 2-

[2]

14

Completes all 8 entries of the table correctly, ie

	... do wear glasses	... do not wear glasses	Total
... boys	1	15	16
... girls	3	11	14
Total	4	26	30

2

or

Completes at least four entries correctly

1
U2

[2]

15

Completes the table for Zhang correctly with frequencies of 7 (for 9 points) and 4 (for 10 points), ie

7
4

2
U1

or

Shows one of the values 109, 110, 102 or 103

OR

Shows a correct method for Zhang that scores one more than the total for Park.

! For 1 m, a total that uses less than 12 arrows for Zhang

Condone

! For 1 m, accept a follow through for their incorrect total for Park

1

[2]

16

(a) 450

Accept an answer in the range 440 to 460 inclusive.

1

(b) 125

1

[2]

17

(a) 15

1

(b) 130

1

[2]

18

(a) 5

1

(b) 45

1

[2]