

8300

GCSE MATHEMATICS

Foundation tier – Questions by Topic

Statistics

Drawing and interpreting pictograms

v1.0

Name _____

Materials

For this paper you must have:

- Mathematical instruments

Information

- The marks for questions are shown in brackets

Advice

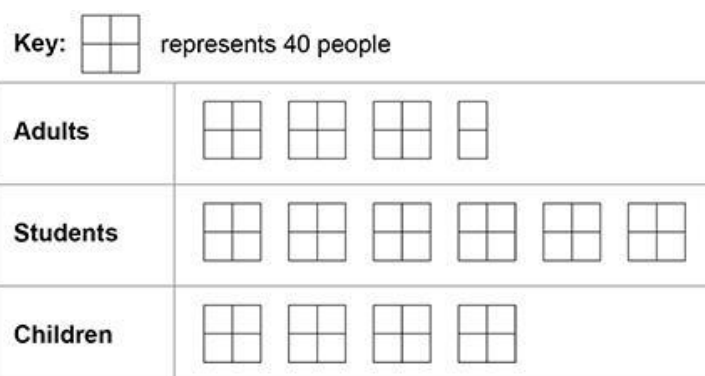
- In all calculations, show clearly how you work out your answer

For questions 1 to 9 you must **NOT** use a calculator.



Q1.

Here is some information, by ticket type, about the number of people visiting a cinema one week.



- (a) How many children visited the cinema? (1)
- (b) How many **more** students than adults visited the cinema? (2)

(Total 3 marks)

Q2.

Five friends want to raise at least £200 altogether for charity.
The pictogram shows how much they each raise.

Key:  represents £10



- (a) Do they reach their target of £200?
Tick a box.

Yes

☐

No

☐

You **must** show your working.

- (b) Sam raises £70 for the charity.
His father adds 25% to this.
Work out 25% of £70

(4)

(2)

(Total 6 marks)

Q3.

Billy asked 20 people,
“What is your favourite crisp flavour?”

(a) Complete the tally chart to show Billy’s results.

Favourite crisp flavour	Tally	Frequency
Plain		12
Cheese and Onion		
Barbecue		3
	Total	20

(2)

(b) Billy uses his tally chart to draw a pictogram.
Complete the pictogram and the key.

Key: represents _____ people

Plain	
Cheese and Onion	
Barbecue	○ ◐

(3)

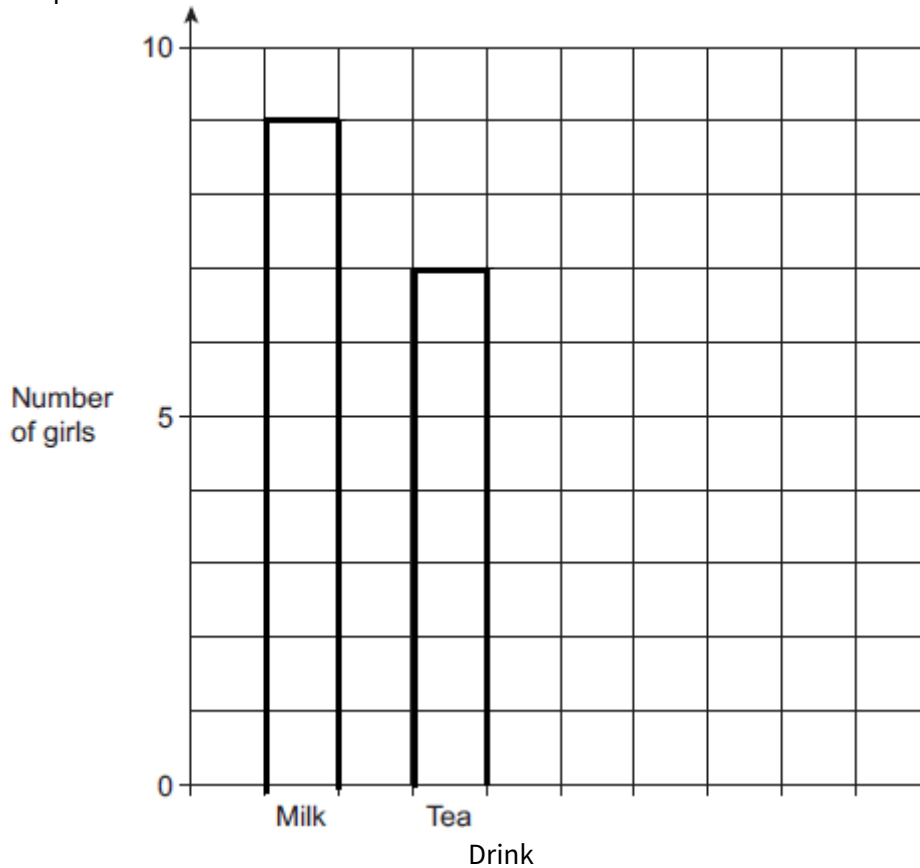
(Total 5 marks)

Q4.

The table shows the favourite drinks of 25 girls.

Drink	Milk	Tea	Coffee	Juice
Number of girls	9	7	4	5

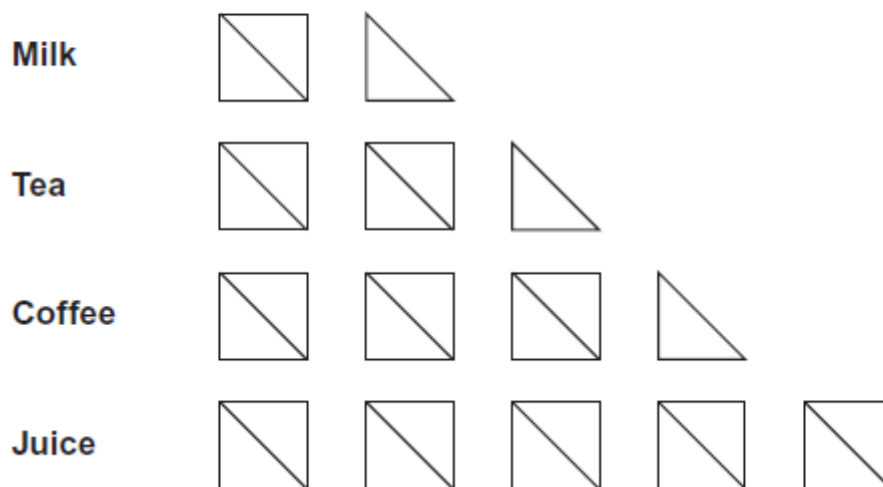
(a) Complete the bar chart to show this information.



(2)

(b) The pictogram shows the favourite drinks of 25 boys.

Key  = 2 boys



How many **more** boys than girls prefer coffee?

(3)

(Total 5 marks)

Q5.

30 people gave their favourite flavour of ice-cream.
Complete the tally chart and pictogram.
Remember to complete the key for the pictogram.

Tally chart to show favourite flavour of ice-cream

Flavour	Tally	Frequency
Vanilla		10
Chocolate		8
Strawberry		
Mint Choc Chip		5
Total		30

Pictogram to show favourite flavour of ice-cream

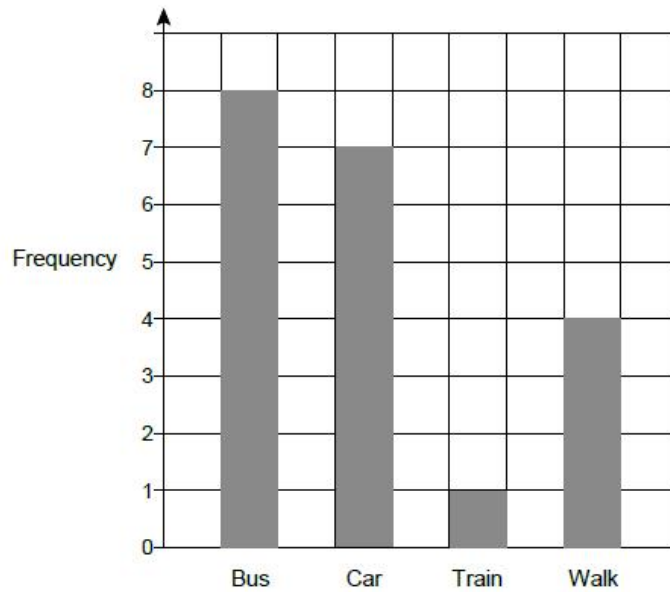
Key:  = _____ people

Vanilla	
Chocolate	   
Strawberry	   
Mint Choc Chip	

(Total 4 marks)

Q6.

The bar chart shows information about how 20 students travel to school.



Show the information in a pictogram.

Use the key given.

Key :  represents 2 students

Bus	
Car	
Train	
Walk	

(Total 3 marks)

Q7.

Misha recorded the main type of weather each day for **55 days**.

The pictogram shows the results for rain, snow and cloud.

Key:  = 4 days

Rain	   
Snow	  
Cloud	    
Sun	
Fog	

Sun was recorded on 1 **more** day than fog.

Complete the pictogram for the 55 days.

(Total 4 marks)

Q8.

Rashid counted the pieces of homework he had done in three subjects.
He draws a pictogram to show the results.

Key:  represents 4 pieces of homework

Maths	    
English	   
Geography	

- (a) Rashid had done 5 pieces of Geography homework.
Show this information on the pictogram.
- (b) Rashid spent 30 minutes on each piece of homework.
Work out the **total** time he spent on homework for these three subjects.
Give your answer in hours and minutes.

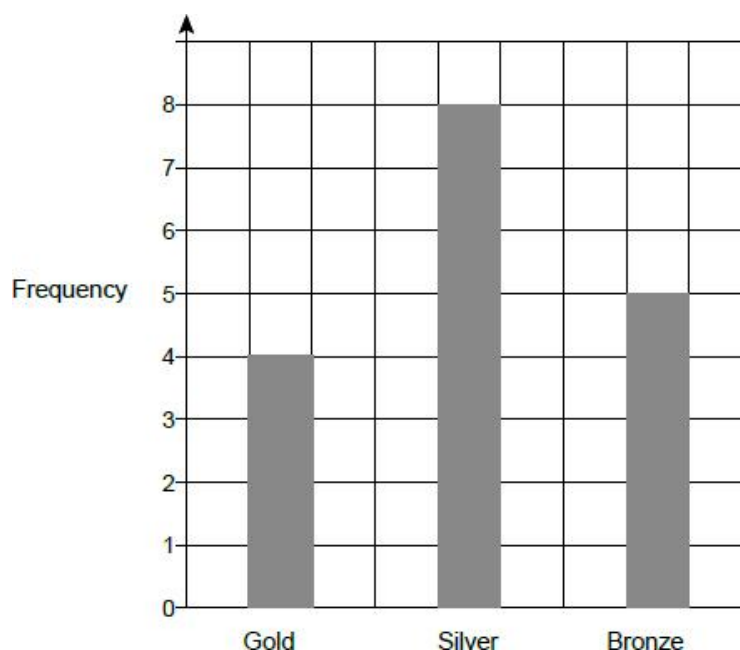
(1)

(3)

(Total 4 marks)

Q9.

The bar chart shows information about the medals won by Kenya at the Commonwealth Games.



Show the information in a pictogram.
Use the key given.

Key:  represents 2 medals

Gold	
Silver	
Bronze	

(Total 3 marks)

For the rest of the questions, you may use a calculator.

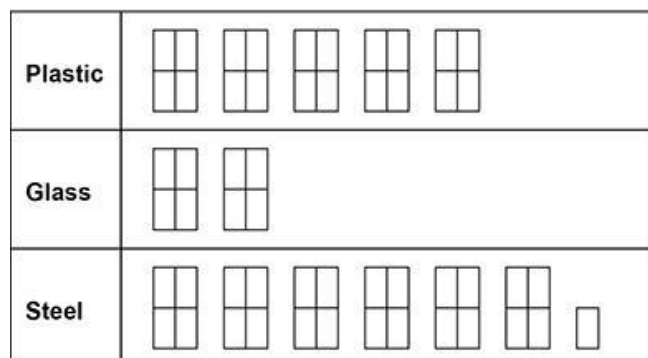


Q10.

A company sells three types of bottle.

The pictogram shows how many bottles they sold one week.

Key:  represents 20 bottles



The company sold **more** plastic bottles than glass bottles that week.
How many more?

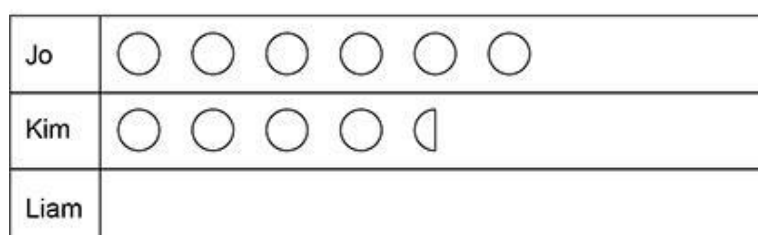
(Total 2 marks)

Q11.

100 people voted in an election for Jo, Kim or Liam.

The pictogram shows the results for Jo and Kim.

Key:  represents 8 people



Complete the pictogram.

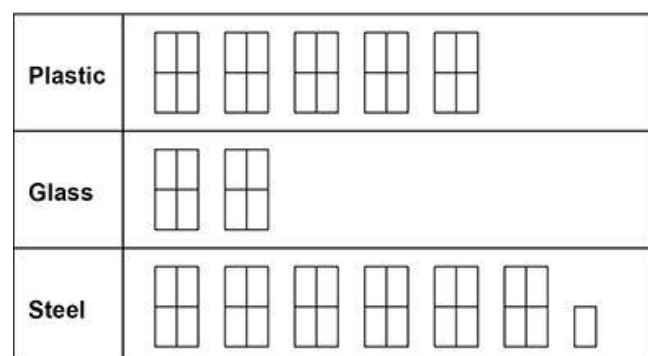
(Total 3 marks)

Q12.

A company sells three types of bottle.

The pictogram shows how many bottles they sold one week.

Key:  represents 20 bottles



The company sells each **steel** bottle for £17.50

Work out the total amount of money made from selling **steel** bottles that week.

(Total 3 marks)

Q13.

The pictogram shows information about the houses in a street.
Each house has 3, 4 or 5 bedrooms.

Key:  represents 2 houses

3-bedroom houses	    
4-bedroom houses	    
5-bedroom houses	 

In total, how many bedrooms do these houses have?

(Total 3 marks)

Q14.

Nicki asked 30 people to name their favourite crisp flavour.
Here are the results.

Salt and Vinegar	16
Ready Salted	7
Cheese and Onion	5
Prawn Cocktail	2

Nicki drew this pictogram to represent the results.

Favourite crisp flavour

Salt and Vinegar	   
Ready Salted	 
Cheese and Onion	 
Prawn Cocktail	

What **two** mistakes has Nicki made?

(Total 2 marks)

Q15.

Three groups of people, A, B and C, have taken driving tests.

(a) Here is information about the number of tests taken by the people in A.

Group A

Key:  represents 4 people

One test	  
Two tests	   
Three tests	 

Here is information about the number of tests taken by the people in B.

One test

Half the number in A who have taken one test.

Two tests

4 fewer than the number in A who have taken two tests.

Three tests

10 more than the number in A who have taken three tests.

Complete this pictogram for the people in B.

Group B

Key:  represents 4 people

One test	
Two tests	
Three tests	

(3)

(b) In group C there are 25 people.

17 of these people have passed a test.

One person is picked at random from C.

Work out the probability that the person has **not** passed a test.

(2)

(Total 5 marks)

Q16.

(a)

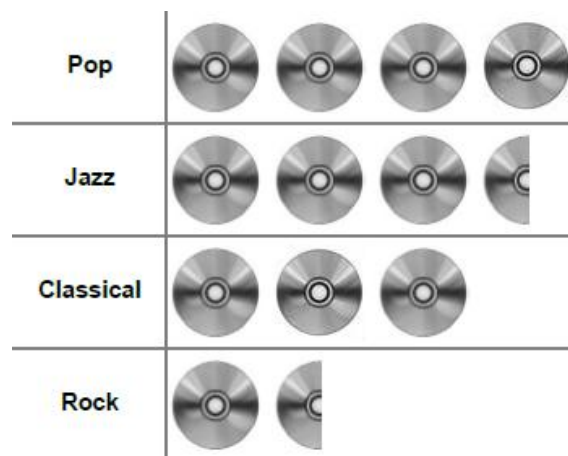


How many CDs do you get for £60?

Answer _____

(3)

- (b) The pictogram shows some information about CDs.
The key is missing.



The total number of CDs is 48

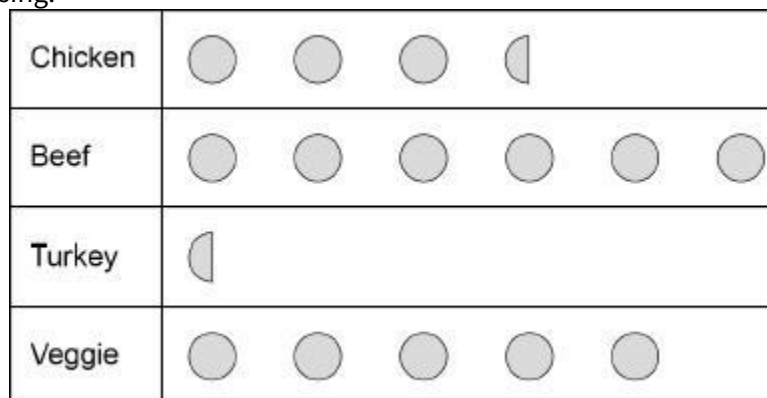
Work out the number of **jazz** CDs.

(4)

(Total 7 marks)

Q17.

A group of students were asked to name their favourite burger.
The pictogram shows the results.
The key is missing.



40 students said Veggie.

How many students said Chicken?

(Total 3 marks)

Q18.

Gemma has four groups of friends on a social media site.
The table shows the number of friends in each group.

Group	Number of friends
Family	8
Netball	8
School	26
Guides	11

- (a) Which group is the mode?

(1)

- (b) Gemma wants a pictogram to show the information.
She has drawn the first two rows.
Complete the pictogram.
Remember to complete the key.

Key:  represents _____ friends

Family	 
Netball	 
School	
Guides	

(3)

(Total 4 marks)

Q19.

A swimming pool has three changing rooms, Male, Female and Family.
The pictogram shows the number of people using each changing room during one hour.

Key:  represents _____ people

Male	 
Female	   
Family	

8 people used the Male changing room.

- (a) Complete the key.

(1)

- (b) How many people used the Female changing room?

(1)

- (c) The manager has bought lockers for the changing rooms.
Why should she **not** use these results to decide where to put them?

(1)

(Total 3 marks)

Q20.

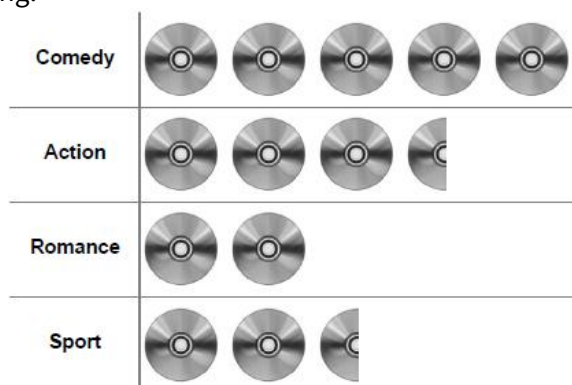
(a)



How many DVDs do you get for £35?

(3)

- (b) The pictogram shows some information about DVDs.
The key is missing.



The total number of DVDs is 260
Work out the number of **Sport** DVDs.

(4)

(Total 7 marks)

Q21.

Kara opens a pizza restaurant.
The frequency table shows information about the first 20 pizzas she sells.

Pizza	Frequency
Margherita	5
Pepperoni	8
Salami	3
Vegetable	4
Total = 20	

- (a) Complete the pictogram.

Key:  represents 2 pizzas

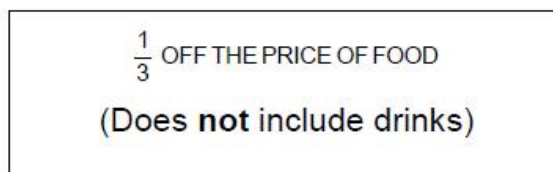
Margherita	
Pepperoni	
Salami	
Vegetable	

(3)

- (b) What percentage of the 20 pizzas were **pepperoni**?

(2)

- (c) At the restaurant, Ruth orders
 food for £13.50
 drink for £2.40
 She uses this voucher.



After the voucher has been used, 10% service charge is added.
 Work out the final bill.

(5)
(Total 10 marks)

Q22.

A club rents films.
 These were the films rented on Monday.

Films rented on Monday

Comedy	12
Thriller	6
Romance	9
Total = 27	

- (a) Draw a pictogram for this data.

Use  to represent 4 films.

Films rented on Monday

Key:  represents 4 films.

Comedy	
Thriller	
Romance	

(2)

- (b) This pictogram represents the films rented on Tuesday.

Films rented on Tuesday

Key:  represents 2 films

Comedy	    
Thriller	
Romance	  

The club manager says,
 “Looking at the total number of films rented on **Monday and Tuesday**, half of
 them were Comedy.”
 Is he correct?
 You **must** show your working.

(3)
(Total 5 marks)

Q23.

A group of friends went on an activity weekend.
They each chose their favourite activity.
Their choices are

Biking Archery Karting Horse riding Biking
Biking Biking Archery Horse riding Archery
Karting Karting Archery Biking Biking

(a) Complete the tally and frequency columns in the table.

Activity	Tally	Frequency
Archery		
Biking		
Horse riding		
Karting		

(2)

(b) Draw a pictogram to show the results.

Key:  represents 2 people.

Archery	
Biking	
Horse riding	
Karting	

(2)

(c) Which activity is the mode?

(1)

(d) What fraction of the friends chose Horse riding?

(1)

(Total 6 marks)

Q24.

Students were asked how long they spent on homework last night.
Complete the table.

Number of hours	Tally	Number of students
1		4
2		
3		
4		6
Total		

(Total 3 marks)

Q25.

Some girls and boys voted for an extra lunchtime sport.

Key:  represents 4 votes

Girls		Boys	
Basketball	 	Basketball	  
Cricket	 	Cricket	
Football	 	Football	  
Netball	 	Netball	

(a) How many girls voted for football?

(1)

(b) How many **more** girls than boys voted for cricket?

(2)

(c) Which sport got the most votes altogether?

Circle your answer.

Basketball

Cricket

Football

Netball

(1)

(Total 4 marks)

Q26.

20 people were asked which colour of car they prefer.

The pictogram shows the results.

The key is missing.

Red	
White	 
Silver	   
Black	 
Blue	
Other	

(a) Which colour was the most popular?

(1)

(b) Complete the key.

Key:  represents _____ people

(2)

(c) How many **more** people preferred silver than black?

(2)

(Total 5 marks)

Q27.

The pictogram shows the number of goals scored by Alex and Jack.

Key  represents 2 goals

Alex	
Jack	
Lee	

(a) How many goals has Alex scored?

(1)

(b) Lee scored 6 goals.
Complete the pictogram.

(1)

(c) In the next match, Jack scores all the goals.
In total, he has now scored **twice** as many goals as Lee.
How many goals did Jack score in this match?

(3)

(Total 5 marks)

Q28.

Here is part of a pictogram about numbers of pets.
The information about cats and dogs has been torn off.

Cats		
Dogs		
Goldfish		
Hamsters		4
Total =		25

Key:  represents 2 pets

The number of cats is **half** the number of dogs.
Work out the number of cats and the number of dogs.

(Total 4 marks)

Q29.

Beth collects this information about Year 7 sports clubs for the school newspaper.

Sports club	Number of members
Football	40
Table tennis	5
Basketball	10
Netball	15

- (a) Use the information to complete the pictogram.
The first two rows have been done for you.
Remember to complete the key.

Key:  represents _____ members

Football	   
Table tennis	
Basketball	
Netball	

- (b) Use the information to write a headline about the sports clubs.
- (c) The 40 members of the football club are put into teams of five.
Each team plays a match against one of the other teams.
How many matches are played?

(3)

(1)

(2)

(Total 6 marks)

Q30.

The pictogram shows how some people travel.

Key:  represents 10 people

Car	    
Bus	   
Bicycle	 
Tram	  

(a) How many of these people travel by car?

(1)

(b) Which is used by the fewest?

Circle your answer.

Car

Bus

Bicycle

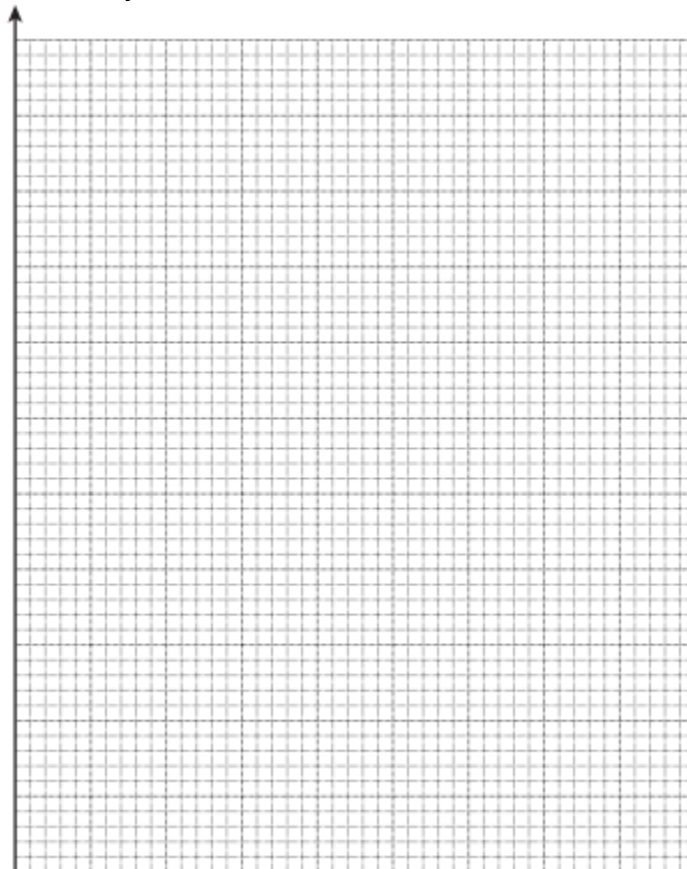
Tram

(1)

(c) How many more people travel by bus than by tram?

(2)

(d) Show the data in a fully labelled bar chart.

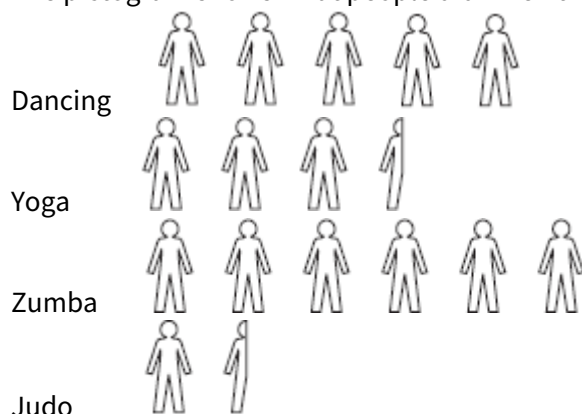


(5)

(Total 9 marks)

Q31.

The pictogram shows what people did when they went to a gym.



Key  represents _____ people

- (a) 20 people did Dancing.
Complete the key for the pictogram.

(1)

- (b) Altogether, how many people went to the gym?

(3)

(Total 4 marks)

Q32.

- (a) A shop sells posters for £3.99 each.
How many posters can Jo buy with a £20 note?

(2)

- (b) The pictogram shows information about the posters sold.

Key:  represents 10 posters

Sport	   
Music	   
Film	 

- (i) What type of poster is the mode?

(1)

- (ii) How many more music posters than film posters were sold?

(2)

(Total 5 marks)

Q33.

- (a) The bar chart shows the amounts Callum saves in January, February and April 2010.



- (i) How much does he save in January 2010?

(1)

- (ii) From January to April he saves £250 in total.

Complete the bar chart by drawing the bar for March.

(3)

- (b) The pictogram shows the amounts Callum saves in the next four months.

Key:  represents £20

May				
June				
July				
August				

Work out the range of the amount he saves in these four months.

You **must** show your working.

(2)

- (c) (i) For the rest of 2010 Callum saves £50 each month.

How much does he save in 2010 in total?

(3)

- (ii) Callum spends 50% of these total savings to pay for a holiday.

How much does he pay for the holiday?

(2)

(Total 11 marks)

Q34.

- (a) Matthew records the types of birds that visit his garden one morning.
(i) Complete the table.

Type of bird	Tally	Frequency
robin	IIII	
blackbird	III	
starling	HHH HHH II	
sparrow	HHH IIII	
Total		

(3)

- (ii) What fraction of the birds are robins?
Give your answer in its simplest form.

(2)

- (b) This table shows the types of birds that Leah records in her garden one morning.

Type of bird	robin	blackbird	starling	sparrow
Frequency	4	6	5	3

She has finished the first row of a pictogram to show the results.
Complete the key and pictogram.

Key:  represents _____ birds

robin	
blackbird	
starling	
sparrow	

(4)

- (c) 500 000 people record the types of birds in their gardens.
In total, they record eight million birds.
On average, how many birds does each person record?

(3)

- (d) Here is a list of the birds at a bird table.

robin robin sparrow blackbird starling
blackbird starling blackbird robin blackbird

One bird flies away.

Another bird arrives at the bird table.

The new mode is robin.

What type of bird flies away and what type of bird arrives?

Complete the table.

	Type of bird
Flies away	
Arrives	

(2)

(Total 14 marks)

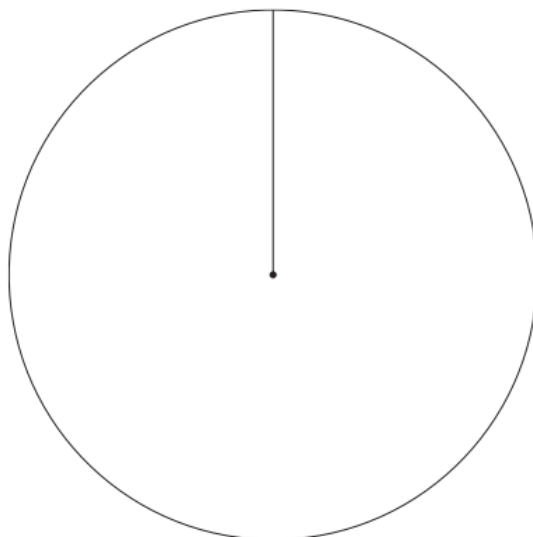
Q35.

Ian sells cans of drinks.

(a) The table shows the percentages of drinks sold on Monday morning.

Drink	Percentage Sold
Cola	30%
Lemonade	20%
Orange	50%

Draw a pie chart for the data.



(4)

(b) The pictogram shows information about the drinks sold on Monday afternoon.
The key is missing.

Cola	    
Lemonade	 
Orange	  

80 cans were sold that afternoon.

How many cans of cola were sold?

(3)

(c) 80 cans were also sold in the morning.

(i) Write down **one** difference between the cans sold in the morning and in the afternoon.

(1)

(ii) Ian orders more cans.

Which flavour should he order least of, based on Monday's sales?

Circle your answer.

Cola

Lemonade

Orange

(1)

(Total 9 marks)

Q36.

Nick takes four tests.
The pictogram shows his scores.

English	○ ○ ○
Geography	○ ○ ◐
Mathematics	○ ○ ○ ○ ◐
Science	○ ○

- (a) Nick scores 60% in English.

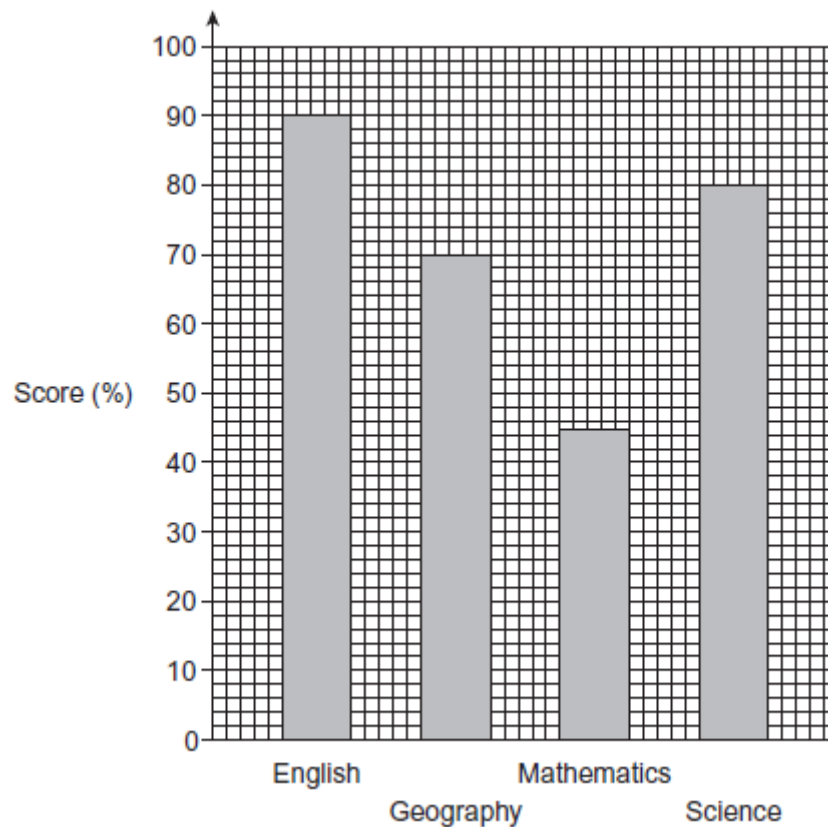
Complete the key. Key: ○ represents _____ %

(1)

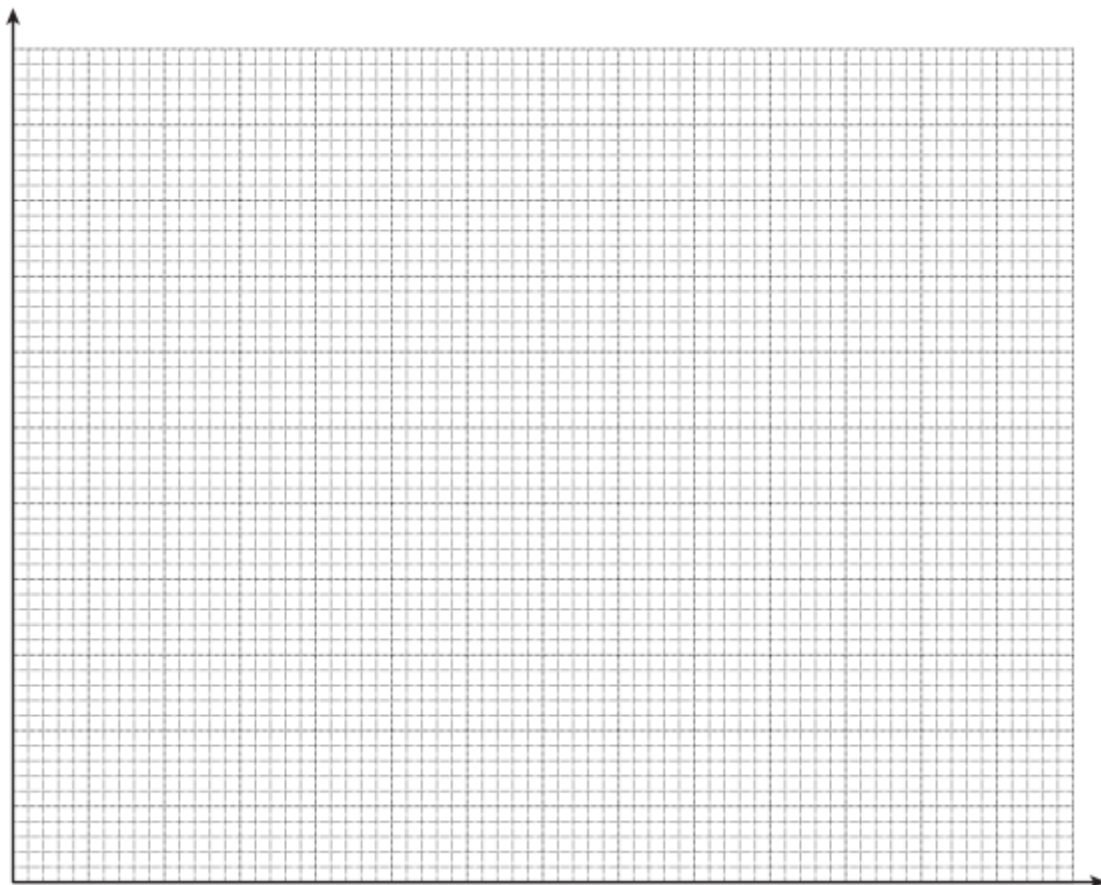
- (b) In which subject is his highest score?

(1)

- (c) Jen takes the same four tests.
The bar chart shows her scores.



- (i) Nick wants to compare his scores with Jen's scores.
Draw a suitable diagram that he can use.



- (ii) Write down **three** facts comparing their scores.

(4)

(3)

(Total 9 marks)