Probability 1F Assessment

Foundation Level ✏ All questions

Out of 93   TOTAL SCORE _____

Final Percentage [   ] %

1) There are 8 coins in a bag: 50p, 20p, 10p, 10p, 10p, 10p, 2p, 1p.

Each one is equally likely to be taken from the bag.

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On the number line

a) Mark with the letter A the probability of taking out a 10p coin.　**1**

b) Mark with the letter B the probability of taking out a 50p coin.　**1**

c) Mark with the letter C the probability of taking out a silver coloured coin.　**1**

d) Mark with the letter D the probability of taking out a 5p coin.　**1**

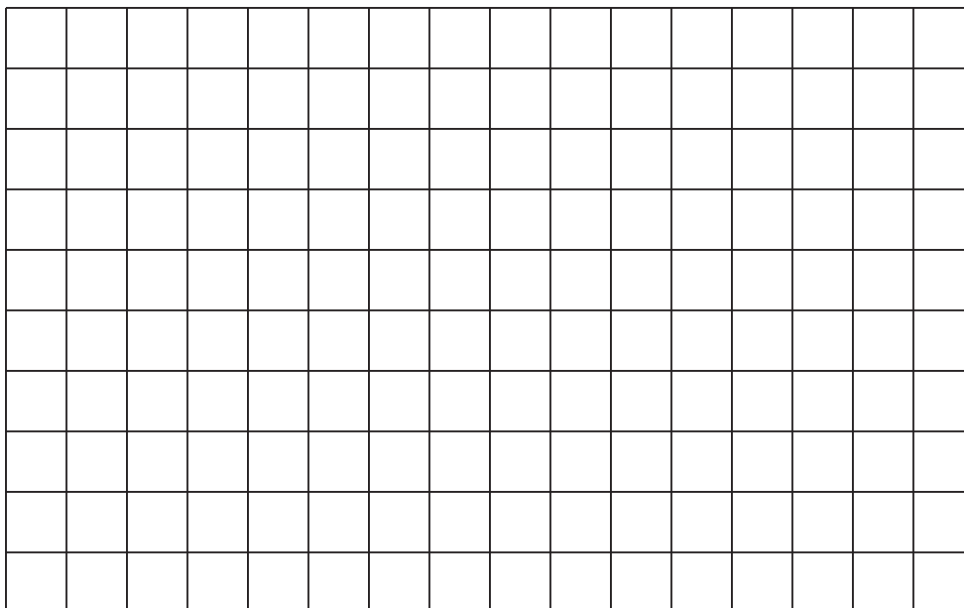2) 24 pupils were asked what pet they have. The results are listed below:

Cat	Dog	Rabbit	Cat	Goldfish	Cat
Dog	Hamster	Cat	Cat	Rabbit	Rabbit
Dog	Dog	Goldfish	Cat	Dog	Hamster
Hamster	Rabbit	Cat	Dog	Cat	Goldfish

a) Complete the tally chart below for this data.

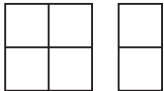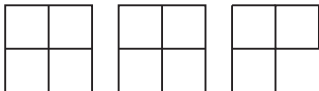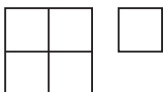| Pet	Tally	Frequency
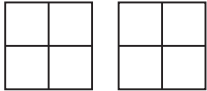
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b) On the grid below, draw a bar chart to represent this data.

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3) The pictogram shows how some office workers at an advertising company spent most of their time at work.

Reading and answering emails	
Using the phone	
In meetings	
Designing adverts	
Other	

Key: represents 20 people

a) How many workers spent most of their time reading and answering emails? _____ **1**

b) How many **more** workers spent most of their time in meetings than on the phone? _____ **1**

c) There were 160 workers altogether.

Work out how many spent most of their time designing adverts and represent this number on the pictogram. **3**

4) There are 30 days in April.

It is predicted that it will rain on 22 of them.

Of the days when it is predicted to rain, it actually rains on 18 of them.

It rains on 24 days in total in April.

Complete the frequency tree.

Prediction   **Actual**

Rain

Rain

No rain

30

No rain

Rain

No rain

1

2
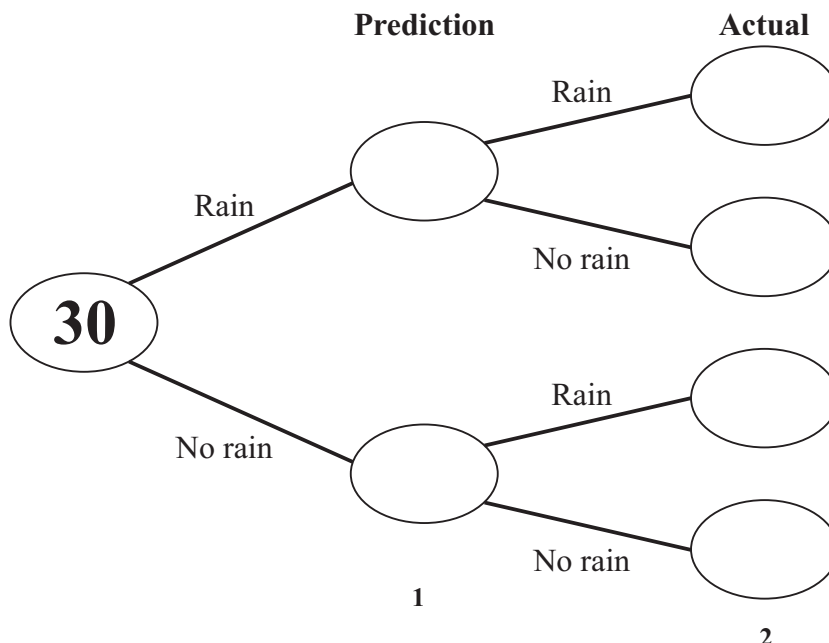
5) Alex has 3 coins in his pocket - 1p, 50p and 20p.

Julie also has 3 coins in her pocket - 2p, 10p and 5p.

They each take one coin out of their pocket.

a) How many possible outcomes are there? _____   **1**

b) List all of the possible outcomes, the first one has been done for you:

1p + 2p, _____   **3**

6) There are 15 sweets in a bag.

9 are toffees and the rest are mints.

A sweet is chosen from the bag at random.

Work out the probability that it is a mint. _____   **2**

7) A bag contains buttons of four different colours.

A button is taken from the bag at random.

The table below shows some of the probabilities of taking each colour of button.

Colour	Red	Black	Blue	Brown
Probability	0.06	0.5		0.32

a) Complete the table.   **2**

b) What is the probability that a red or black button is taken from the bag? _____   **2**

8) 50 students were asked which method of transport they most often use to travel to school.

The two-way table shows some information about their answers.

	Walk	Cycle	Car	Bus	Total
Male	6				
Female			9		
Total				19	50

23 of the students are male.

9 of these male students take the bus.

Of the 8 students that cycle, 2 are female.

a) Complete the two-way table.   **3**

b) What is the probability that a student, chosen at random, walks to school? _____   **2**

9) Rajesh wrote down the times that 10 people took to run 100 metres.

The times, in seconds, were: 21.3, 19.5, 22.7, 16.5, 25.2, 18.7, 20.9, 19.5, 27.4, 24.3

a) What was the mean time? _____ **2**

b) What was the median time? _____ **2**

c) What was the modal time? _____ **1**

d) What was the range of the times? _____ **2**

10) Five integers have

    a mode of 5

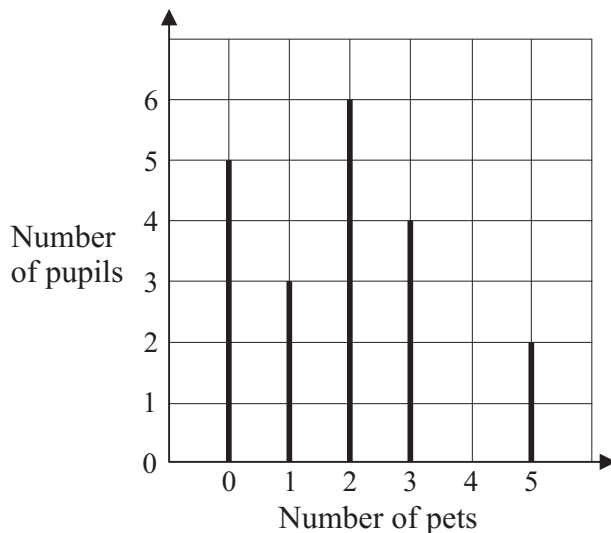   a median of 7

    a mean of 10

    a range of 15.

Work out what the five integers are. _____ _____ _____ _____ _____ **4**

11) Decide whether each of these sets of data is **discrete** or **continuous**.

a) Heights of sunflowers. _____ **1**

b) Number of seeds in a packet. _____ **1**

c) Amount of people in a queue. _____ **1**

d) Weight of fertiliser in a bag. _____ **1**

12) The line graph shows the number of pets owned by the pupils in a class.

a) What is the modal number of pets? _____ **1**

b) How many pets were owned by the pupils in the class altogether? _____ **2**

c) What was the mean number of pets? _____ **2**

13) A factory that packs cheese suspects that one of its weighing machines is faulty.

Twenty packs of cheese weighed by this machine are re-weighed. The packs are labelled '200g'.
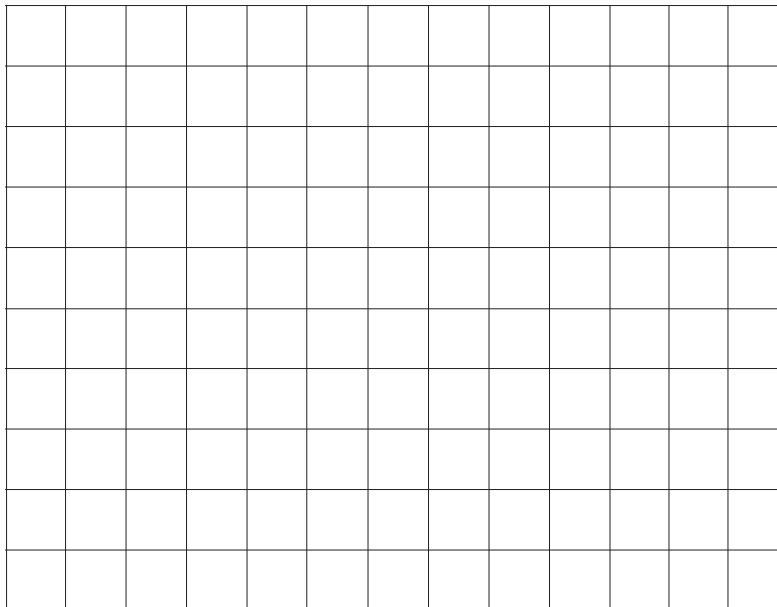
The weights, in grams, are:

205	206	199	200	198
200	200	207	210	200
211	201	197	200	205
200	199	208	200	200

a) Complete the frequency table for this data.

Weight in grams (w)	Tally	Frequency
195 $\quad w < 200$		
200 $\quad w < 205$		
205 $\quad w < 210$		
210 $\quad w < 215$		

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b) Draw a frequency diagram to represent this data.

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14) Alice, Bob and Chloe each note whether it rains or not each day for a number of days.

The table shows their results.

	Number of days	Number of days rain
Alice	10	3
Bob	50	16
Chloe	100	36

a) Bob says: 'As it can either rain or not rain, the probability of it raining is 0.5'.

Criticise his statement.

_____

_____ **1**

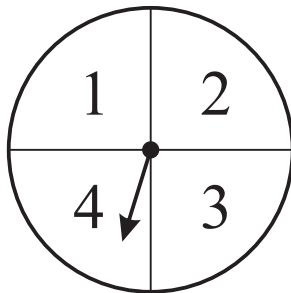b) Whose results give the best estimate of it raining on any given day?

Explain why.

_____

_____ **2**

c) What is the best estimate for the probability of it raining on any given day? _____ **1**

15) A game is played with a fair spinner.

The player spins the spinner **twice**.

The score is the total of the two numbers.

a) Complete the possibility space to show the scores.

First spin

	1	2	3	4
1			4	
2				
3		5		
4				

Second spin

2

b) You win a prize if you score 5.

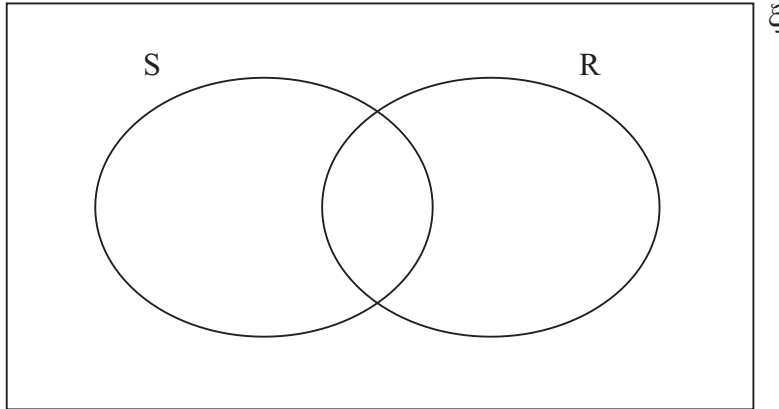What is the probability of winning a prize? _____ **2**

16) 30 pupils were asked what kind of soda they drank - sugar-free or regular.

17 of the 30 pupils drank regular soda.

13 of the 30 pupils drank sugar-free soda.

5 of the 30 pupils did not drink soda.

a) Complete the Venn diagram to show this information.

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S = Sugar-free
R = Regular

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b) How many pupils are included in:
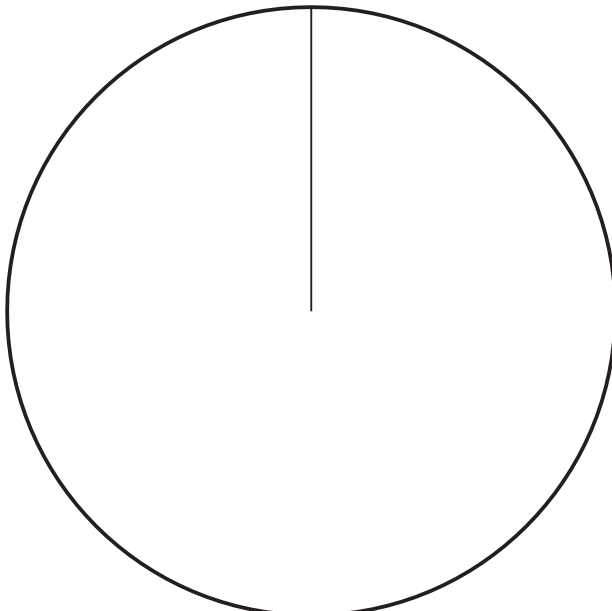
i)   S ∩ R; _____   **1**

ii)   S' ∪ R? _____   **2**

17) Gary asked some people what their favourite type of chocolate was.
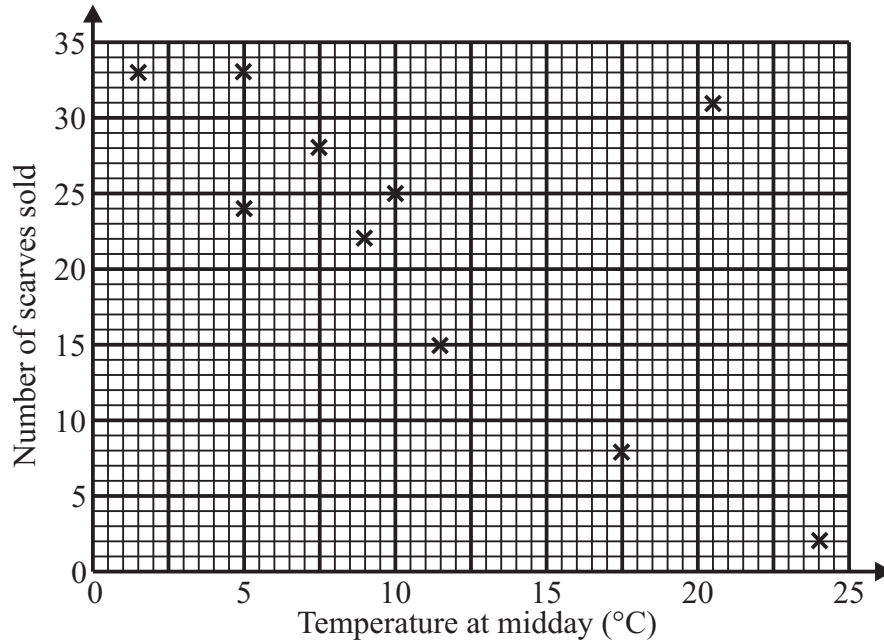
The table shows his results.

Chocolate	Frequency	
Milk	46	
White	28	
Dark	16	

Draw an accurate pie chart to show these results.

3

18) The scatter graph shows the number of scarves sold in a shop each day against the temperature at midday that day.

a) Describe the relationship between the temperature at midday and the number of scarves sold.

_____ **1**

b) On one day, the shop had a special clearance sale on scarves.

On the graph, circle the data point that you think represents this day. **1**

c) Use a line of best fit to predict the number of scarves that the shop may sell when the temperature at midday is 15°C. _____ **2**

19) Peter keeps chickens. Every day for a month he counted the number of eggs that they laid.

The results are shown in the table.

Number of eggs	Number of days
4	4
5	10
6	8
7	6
8	3

a) What was the modal number of eggs laid? _____ **1**

b) What was the mean number of eggs laid? _____ **3**

c) What was the median number of eggs laid? _____ **2**

20) Diana weighs the eggs laid by her chickens.

The results are shown in the table.

Weight in grams (w)	Number of eggs
45 $w < 50$	4
50 $w < 55$	5
55 $w < 60$	12
60 $w < 65$	7
65 $w < 70$	3

a) Which is the modal group? _____   **1**

b) In which group does the median lie? _____   **1**

c) Explain why we cannot calculate an accurate value for the mean from this data.

_____

_____

_____   **2**

d) Calculate an estimate for the mean.

_____   **3**