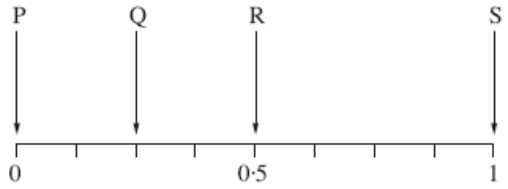
1. Pierre has 8 cartons of drink in his fridge.

- 2 orange
- 1 lemon
- 4 apple
- 1 cherry

He takes one of these drinks without looking.



Which arrow shows the probability that Pierre chooses

(a) apple,

.....

[1]

(b) blackcurrant,

.....

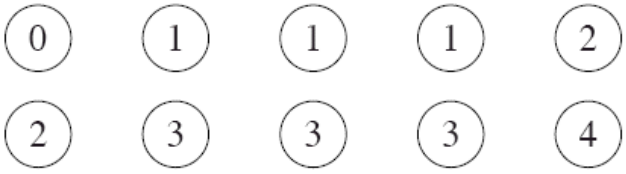
[1]

(c) orange?

.....

[1]

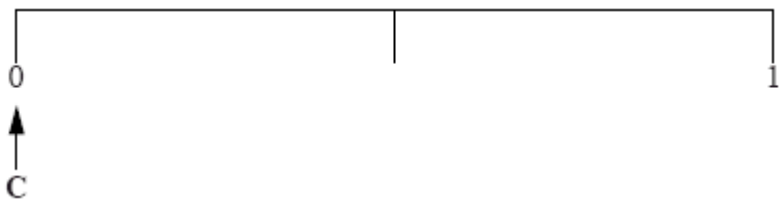
2. A bag contains these ten numbered counters.



Ted takes a counter from the bag without looking.

(a) On the probability line draw:

- arrow **A** to show the probability that Ted takes a 2
- arrow **B** to show the probability that Ted takes a number less than 3.



[2]

(b) Complete this sentence.

Arrow C shows the probability that Ted takes .....

[1]

3. An ordinary fair six-sided dice is rolled once.

(a) Sean says

There is a 50-50 chance of getting a six.

Explain why Sean is wrong.

.....

.....

[1]

(b) Heather says

The probability of getting an even number is 1 out of 2.

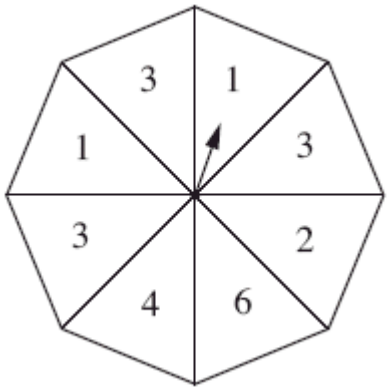
Write one thing that is wrong with this statement.

.....

.....

[1]

4. Janet uses this fair spinner in a game.



Janet spins the spinner.

Find the probability that it lands on

(a) 2,

.....

[1]

(b) an odd number,

.....

[1]

(c) a factor of 12.

.....

[1]

5. Susie is a salesperson.
She sends emails to her customers about special offers.
She keeps a record of the results.

Results	Total
No reply	25
Reply email only	20
Sale	5

(a) Use these results to find the probability that she gets No reply.
Write your answer in its simplest form.

.....

[2]

(b) Find the probability that she gets a Sale.

.....

[1]

(c) The next day she sends a special offer email to 200 customers.

How many Sales does she expect from 200 customers?

.....

[1]

6. Emma has 10 pens in her pencil case.

- 5 are black
- 2 are blue
- 2 are purple
- 1 is pink

She takes one pen at random and looks at the colour.

(a) Complete this sentence using a colour.

It is **evens** that she takes ..... .

[1]

(b) Some probabilities are shown on this number line.

(i) Match the correct arrows with these statements.

The probability that she takes **purple** is shown by arrow ..... .

[1]

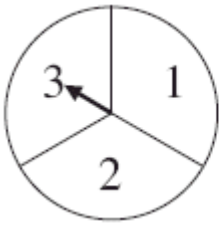
The probability that she takes **green** is shown by arrow ..... .

[1]

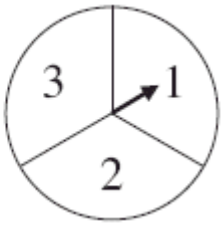
(ii) Mark an arrow on the probability line to show the probability that she takes pink.
Label your arrow P.

[1]

7. A game is played using these two fair spinners.



1st spinner



2nd spinner

The picture shows the scores 3 and 1.

(a) List all the possible pairs of scores.
The scores shown in the picture have been done for you.

You may not need to use all the lines.

1st spinner	2nd spinner
3	1

[2]

(b) The two scores are added together to give a total.

What is the probability of getting a **total** of 3?

.....

[2]

8. Mike has a fair dice labelled 2, 2, 3, 3, 4, 4.
Mike rolls this dice.

What is the probability that he gets a 4?

.....

[1]

9. Maria is playing a game with two fair dice.

Dice A has six faces numbered 5 to 10.
Dice B has four faces numbered 1 to 4.

She throws the two dice.
She subtracts the number on dice B from the number on dice A to get her score.

(a) Complete the table below to show all her possible scores.
Three have been done for you.

		Dice A					
		5	6	7	8	9	10
Dice B	1	4					
	2			5			
	3					6	
	4						

[2]

(b) What is the probability that her score is

(i) 9,

.....

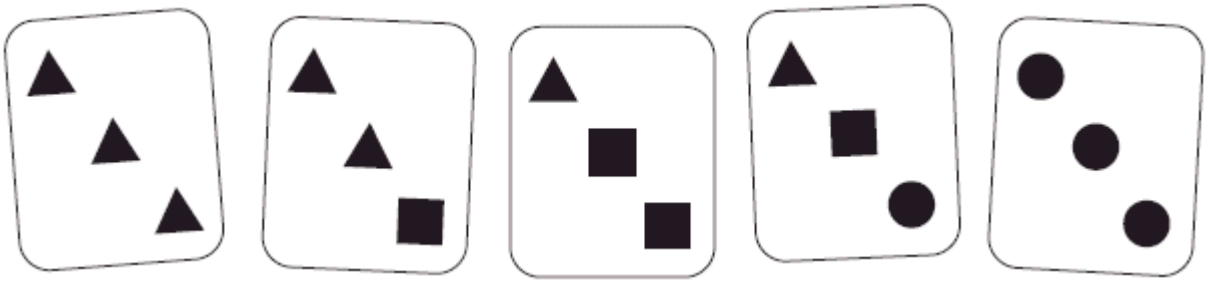
[1]

(ii) a factor of 14?

.....

[2]

10. Mary takes one of these five cards without looking.



Work out the probability that her card

(a) has three triangles on it,

.....

[1]

(b) has three symbols the same on it.

.....

[1]

11. Miss Gaunt is picking a team of one girl and one boy to take part in a quiz.
She can choose from:

Girls: Vicky (V), Sarah (S), Zara (Z)

Boys: Jack (J), Lee (L)

(a) She lists all the possible teams.
Complete this table to show all the possible teams.

You may not need all the lines.

Girl	Boy
V	J

[2]

(b) She picks the team from the list at random.

What is the probability that the girl is **either** Vicky **or** Zara?

.....

[2]

12. Tom puts one party hat into each Christmas cracker.
The hats are red, yellow or green.

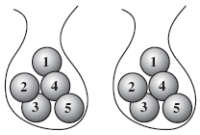
The probability that a cracker contains a red hat is 0·35.
The probability that a cracker contains a yellow hat is 0·4.

What is the probability that a cracker contains a green hat?

.....

[2]

13. Two bags each contain five balls, numbered from 1 to 5.



In a game, Charlie takes a ball at random from each bag.
He **multiplies** the numbers on the two balls to get his score.

(a) Complete the table to show all the possible scores.

×	1	2	3	4	5
1					
2					10
3				12	
4					
5	5				

(b) Find the probability that Charlie's score is 16.

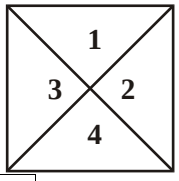
..... **[1]**

(c) Find the probability that Charlie's score is **greater than** 10.

..... **[2]**

14. Randeep makes a spinner numbered from 1 to 4.

To test the spinner, he spins it 200 times. Here are his results.



Number	1	2	3	4
Frequency	49	77	22	52

(a) Is the spinner fair?
Explain your answer.

..... because .....

..... **[1]**

(b) Use the table to estimate the probability of getting

(i) 2,

..... **[1]**

(ii) an odd number.

.....

[2]

15. (a) Terry uses a **biased** coin to play a game.

The probability of getting 'Heads' is $\frac{2}{5}$.

What is the probability of getting 'Tails' for Terry's coin?

.....

[1]

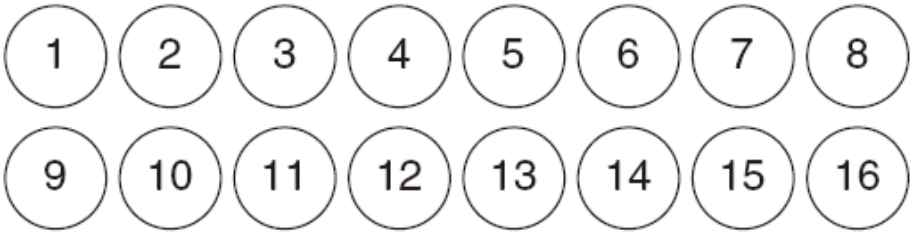
(b) Terry also uses a biased four-sided dice.
The probability of getting each number is given in the table.

Number	1	2	3	4
Probability	0·3	0·1		0·45

Complete the table.

[2]

16. A bag contains these 16 counters.



Stuart takes a counter from the bag without looking.

(a) Find the probability that he takes 

.

.....

[1]

(b) Emily says:

> Stuart is more likely to take a square number than a number in the 5 times table.

Is Emily correct?

Give a reason for your answer.

Write Yes or No on the first space.

..... because .....

.....

[1]

17. City play United at football.

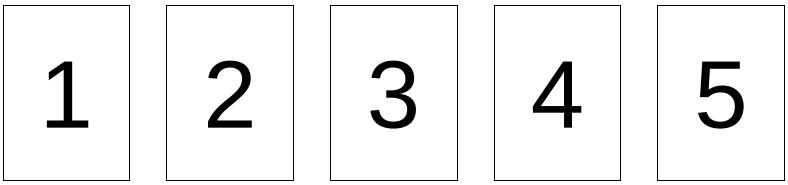
The probability that City win is 0·3.
The probability that the game is a draw is 0·05.

What is the probability that City lose?

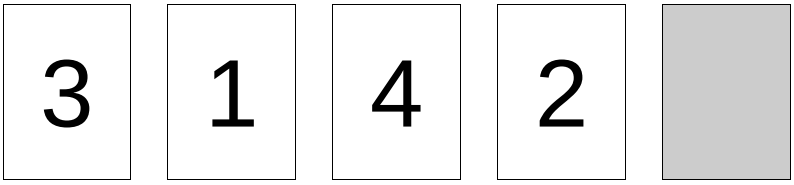
.....

[2]

18. Anan is playing "Higher and Lower" with these five cards.



(a) Anan shuffles the cards and places them face down.
He turns over the first four cards.
He has to guess if the next card is Higher or Lower than the last one.

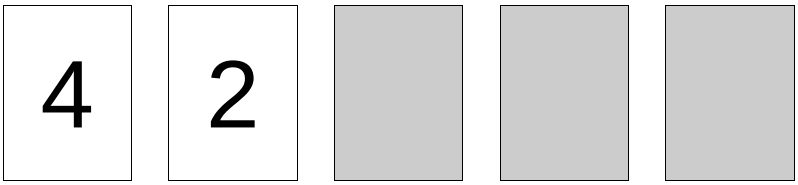


What is the probability that the final card is Higher than 2?

.....

[1]

(b) Anan picks up the cards and shuffles them again.
He places the cards face down and turns over the first two cards.

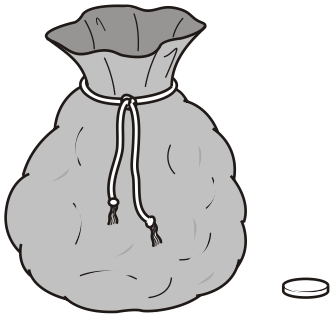


What is the probability that the next card is Higher than 2?

.....

[2]

19.



A bag contains red, blue and green counters.
A counter is drawn at random from the bag.
The probability that it is red is 0·4.
The probability that it is blue is 0·25.

(a) What is the probability that it is green?

.....

[2]

(b) There are 80 counters in the bag.

How many of them are blue?

.....

[2]

20. This table shows information about Year 4 pupils in a primary school.

	Can swim	Cannot swim
Boys	19	13
Girls	18	10

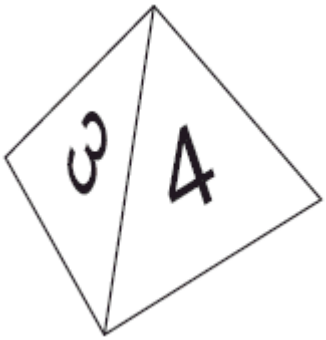
One pupil is chosen at random from this year group.

What is the probability that this pupil cannot swim?

.....

[2]

21. Sam is playing a game with a fair coin and a fair dice.
The four faces of the dice are numbered 1, 2, 3 and 4.



(a) Sam throws the dice once.
What is the probability that the dice lands on 2?

.....

[1]

(b) Sam throws the coin and the dice together.

(i) Complete the table to show all the possible outcomes.

You may not need to use all the rows.

Coin	Dice
Head	1

[2]

(ii) What is the probability that Sam throws a head and an odd number?

.....

[2]

22. Lunch bags at Town School contain one sandwich and one piece of fruit from these lists.

Sandwich	**Fruit**
Meat (M)	Apple (A)
Cheese (C)	Orange (O)
Egg (E)	Banana (B)
	Pear (P)

(a) Complete the table to show all the different combinations there are.

You may not need to use all the lines.

Sandwich	**Fruit**
M	A

[2]

(b) One lunch bag of each combination is placed on a table.
Mrs Murphy takes one of these lunch bags at random.

What is the probability that her lunch bag contains a Cheese sandwich and an Orange?

.....

[1]