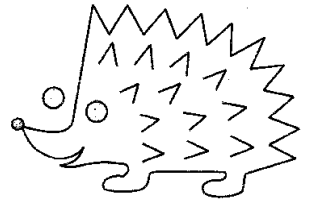


# Questions about Probability



Hedgehog Mathematical Sheets

A. Anita flips a 2p coin twenty times and these are her results:

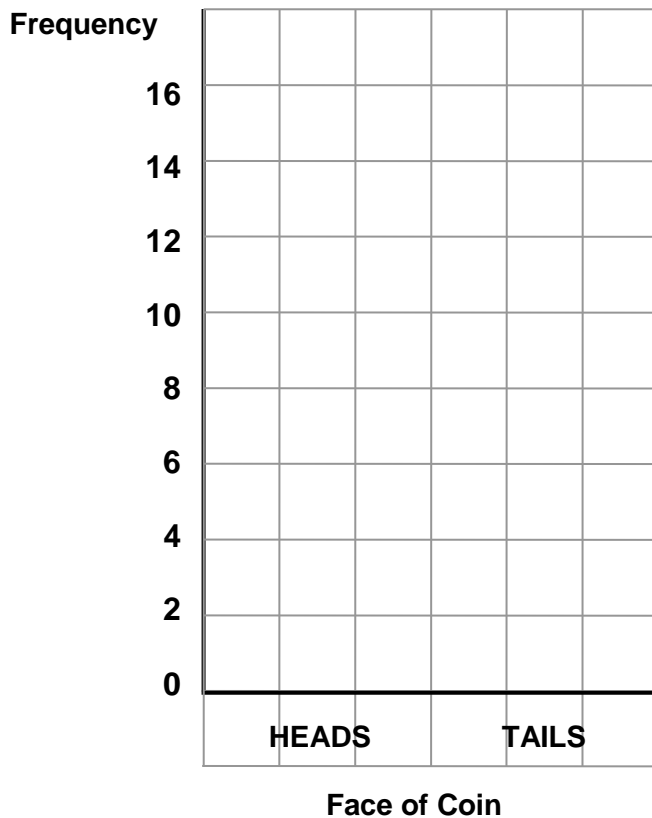
T T T H T T H T T H  
H T T H T T T H T T

Complete the tally chart of Anita's results:

Face of Coin	Tally	Frequency
Heads		
Tails		

2 marks

Plot your results on the bar graph.



3 marks

Do you think that Anita had a fair coin? Circle Yes or No.

 Yes / No

Explain how you know.



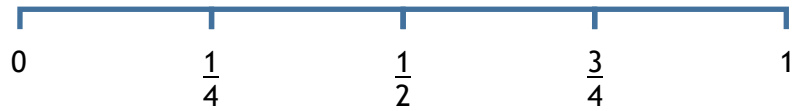
.....

.....

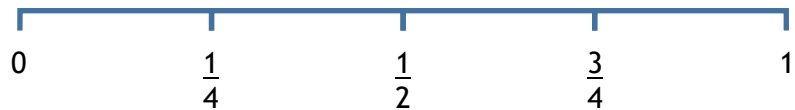
2 marks

B. Belinda has a normal four-sided die.

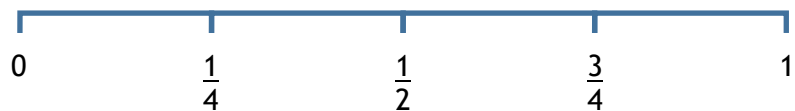
Circle the probability that Belinda's die will land on a 2:



Circle the probability that Belinda's die will land on a number less than 4:



Circle the probability that Belinda's die will land on a 5:



Belinda now rolls her die ten times and these are her results:

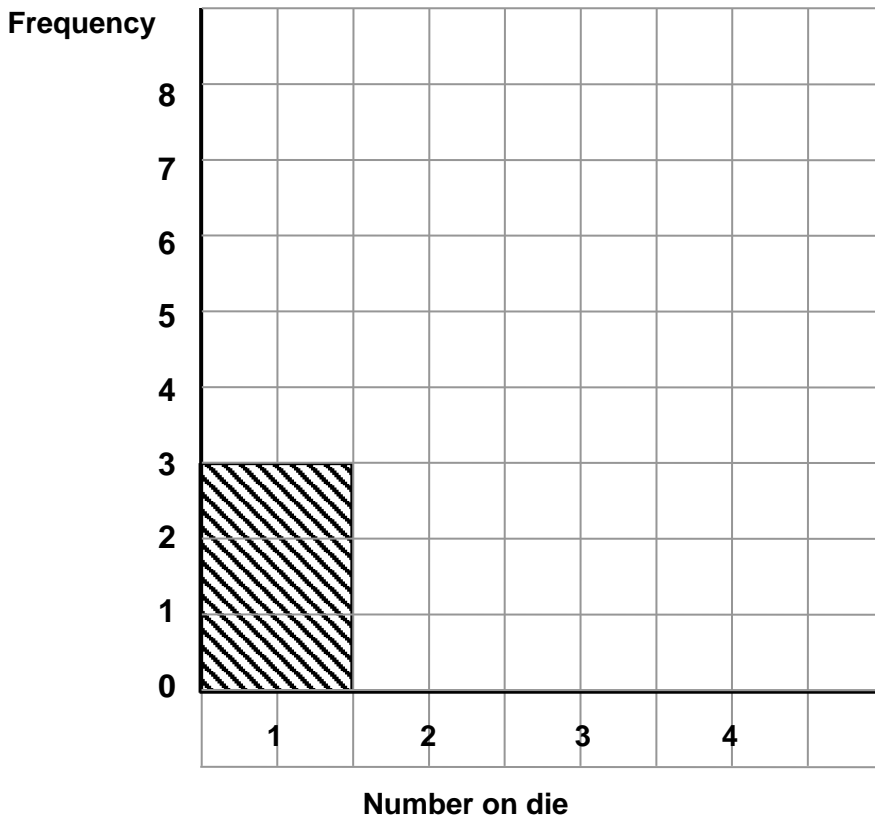
3    2    1    1    2    2    2    4    1    2

Complete the tally chart of Belinda's results:

Number on Die	Tally	Frequency
1	III	3
2		
3		
4		

3 marks

Plot your results on the bar graph; the first one has been done for you.



3 marks

Do you think that Belinda's die was fair? Circle Yes or No.

 Yes / No

Explain your answer.



.....

.....

.....

.....

.....

2 marks

Belinda now uses another normal four-sided die that she knows to be fair. She rolls three fours in a row. Circle the sentence that is most likely to be true:

The next roll is likely to be a four as well.

The next roll is likely to be anything that isn't four.

The next roll might be any number.

1 mark

C. Mrs Miggins' class are investigating dice rolls.

Charlie rolls a normal six-sided die sixteen times. Here are his results:

1    5    6    5    3    4    5    1  
2    2    3    1    5    5    4    5

(a) Put his results into the chart. The first set has been done for you.

Dice roll	Tally	Frequency
1	III	3
2		
3		
4		
5		
6		

Total = 16

3 marks

Using his results, Charlie sees that the chance of rolling a one with his die is  $\frac{3}{16}$

Using your results from the table:

(b) What is the chance that Charlie rolls a six?

Answer ..... 1 mark

(c) What is the chance that Charlie does not roll a three?

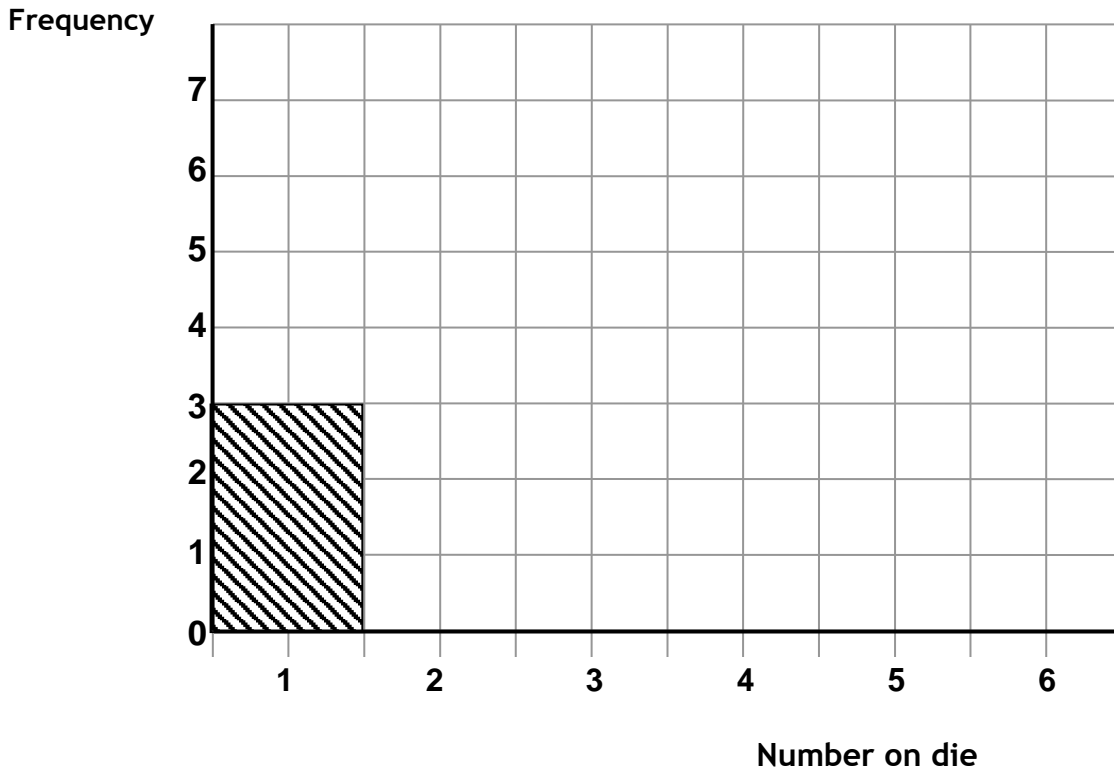
Answer ..... 2 marks

(d) What is the chance that Charlie rolls a seven?

Answer ..... 1 mark

(e) Draw a bar chart to show Charlie's results.

The first bar has been drawn for you.



3 marks

(f) Do you think that Charlie was using a fair die?

Explain your answer.

.....

.....

.....

.....

2 marks

(g) Charlie now uses another normal six-sided die that he knows to be fair. He rolls three sixes in a row. What is most likely to happen on the next roll?

.....

.....

1 mark

- D. Darius and his friends had six normal six-sided dice. Each time they rolled them they added up the numbers on the dice. They recorded their results in a frequency table.

Sum of dice numbers = S	Frequency
$7 \leq S \leq 11$	5
$12 \leq S \leq 16$	30
$17 \leq S \leq 21$	40
$22 \leq S \leq 26$	22
$27 \leq S \leq 31$	15
$32 \leq S \leq 36$	8

Using the results from the table:

- (a) How many times did Darius and his friends roll the six dice?

Answer ..... 1 mark

- (b) What was the probability of getting a sum between 7 and 11 inclusive?

Answer ..... 1 mark

- (c) What was the probability of getting a sum greater than 21?

Answer ..... 2 marks

- (d) What is the modal class interval of their results?

Answer ..... 1 mark

(e) Calculate an estimate of the mean sum of their throws.

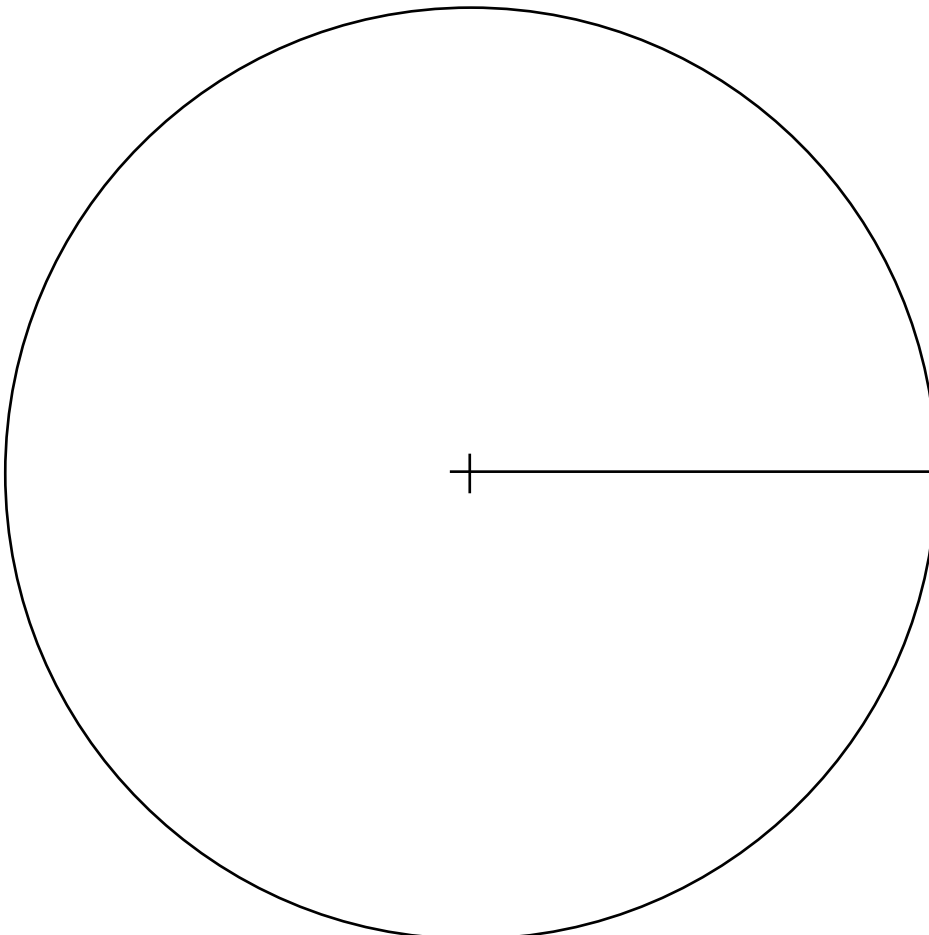
Answer ..... 3 marks

Darius and his friends now draw a pie chart to show their results.

(f) How many degrees will represent one set of dice rolls?

Answer ..... 1 mark

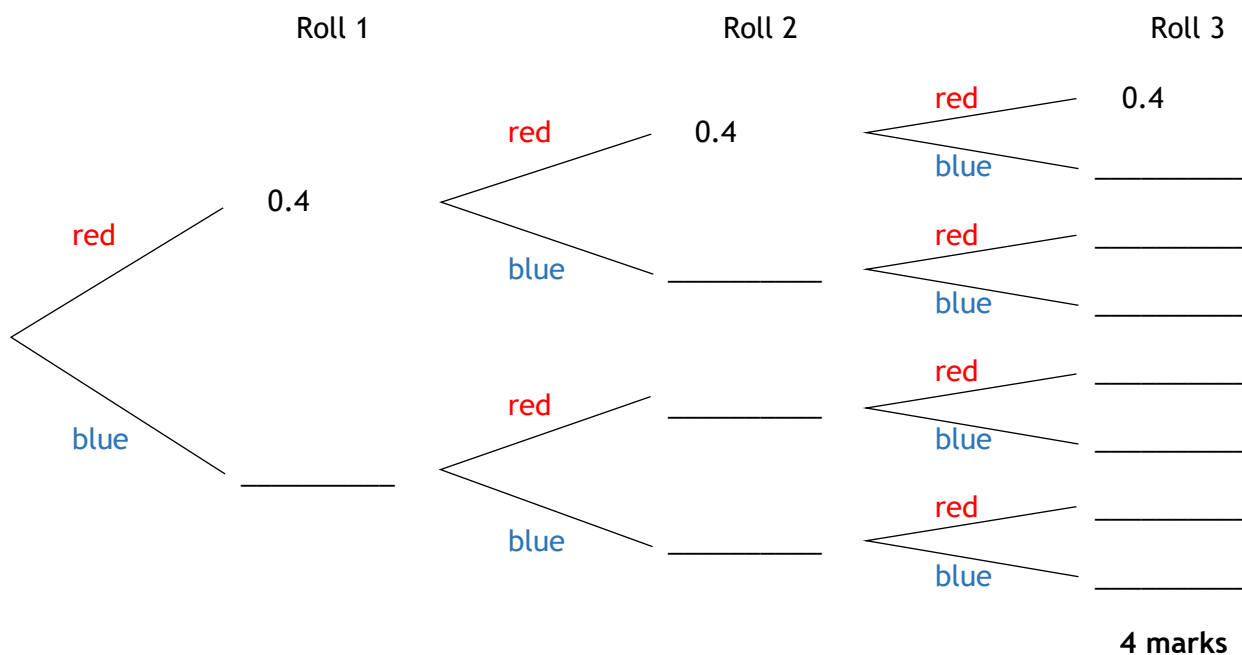
(g) Draw and label an accurate pie chart of their results.



3 marks

E. Emile has a six-sided die with three faces coloured red; the other three faces are blue. His die is not fair and only has a 0.4 chance of landing on a red face. Emile rolls the die three times.

(a) Complete the probability tree of Emile's rolls.



(b) What is the probability that Emile rolls three reds in a row?

Answer ..... 1 mark

(c) What is the probability that Emile rolls the same colour three times?

Answer ..... 2 marks

(d) What is the probability that Emile rolls at least two blues?

Answer ..... 3 marks