Find probabilities from two-way tables

1 **a)** Complete the two-way table for these students.

Mo   Amir   Ron   Teddy   Jack

Eva   Dora   Dexter   Rosie   Whitney
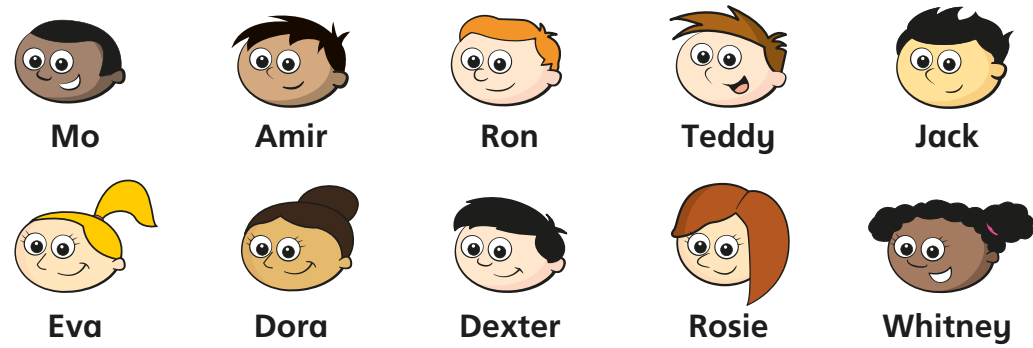
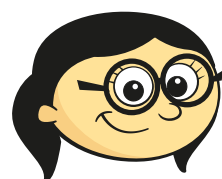|	Name has fewer than five letters	Name has five letters or more	Total
Light hair	2		
Dark hair			
Total			

b) A student is selected at random.

Fill in the missing information.

P(dark hair) = ☐

P(light hair and name has five or more letters) = ☐

c) Annie is going to the cinema with one of the students above.

> I am going to the cinema with a person who has dark hair.

What is the probability that the student has fewer than five letters in their name? ☐

2 **a)** Complete the two-way table for these numbers.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |

	Factor of 30	Not a factor of 30	Total
Multiple of 3			
Not a multiple of 3			
Total			

b) Discuss with a partner the strategies you used to complete the table.

c) A card is selected at random.

Fill in the missing information.

P(multiple of 3) = ☐

P(not a factor of 30) = ☐

P(multiple of 3 but not a factor of 30) = ☐

d) Alex has selected a multiple of 3

What is the probability that it is also a factor of 30? ☐

3 120 students were asked if they play sport and if they play an instrument.

a) Complete the missing values in the two-way table.

	Plays an instrument	Does not play an instrument	Total
Plays sport			72
Does not play sport	28		
Total		45	

A student is selected at random.

b) Work out the probability that the student plays a sport and plays an instrument.

c) What is the probability that the student plays sport and does not play an instrument?

d) Work out P(plays an instrument but does not play sport).
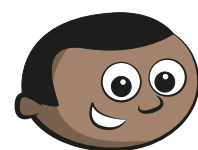
Most people play sport and play an instrument.

e) Is Mo correct? _____

Explain your answer.

_____

_____

4 This two-way table shows information about books in a library.

	Fiction	Non-fiction	Total
Hardback	50		
Paperback			800
Total			

a) Use the information below to complete the table.

The ratio of hardback books to paperback books is 1 : 4

P(non-fiction paperback) = 0.32

If you select a paperback, there is a 60% chance it is fiction.

b) A book is selected at random.

Work out the probability that it is a fiction paperback.

Give your answer in its simplest form.

c) A non-fiction book is selected at random.

Work out the probability that it is a hardback.

Give your answer in its simplest form.