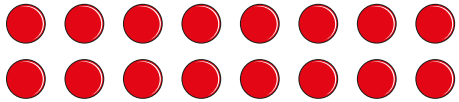
1 Alex arranges 16 counters in different ways.

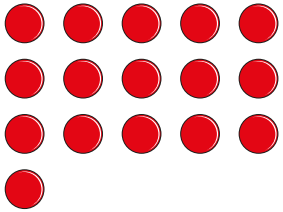
She is trying to work out some factors.



a) Use the array to complete the sentence.

☐ and ☐ are both factors of 16

b) Alex rearranges the counters.



How does this array show that 5 is not a factor of 16?

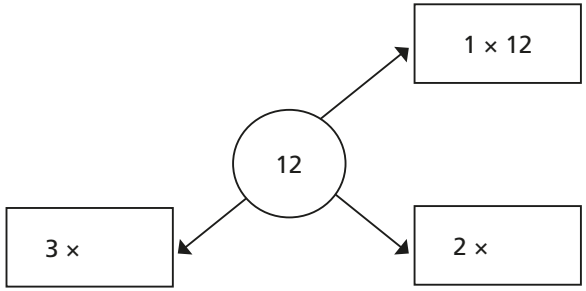
2 Use 20 counters.

a) Show that 2 and 10 are factors of 20

b) Rearrange the counters to show why 4 and 5 are also factors of 20

c) Show why 6 is not a factor of 20

3 **a)** Complete the diagram to show the pairs of numbers that multiply to make 12



List all the factors of 12

b) Draw a similar diagram to show the pairs of numbers that multiply to make 24

List all the factors of 24

4 **a)** List all the factors of 32

b) How can you check that you have found all the factors?

5 **a)** Which numbers are factors of 30?

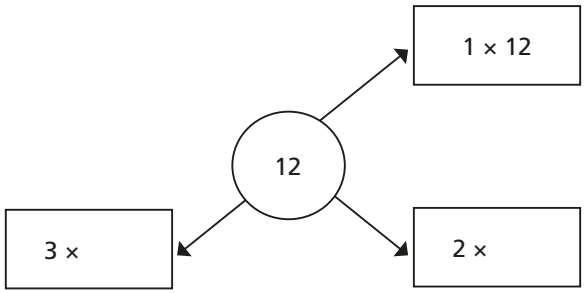
5 **15** **25** **3** **30** **4** **2** **12** **60** **0**

b) These numbers are all factors of a 2-digit number.

1 **3** **5** **9**

What could the number be?

3 **a)** Complete the diagram to show the pairs of numbers that multiply to make 12



List all the factors of 12

b) Draw a similar diagram to show the pairs of numbers that multiply to make 24

List all the factors of 24

4 **a)** List all the factors of 32

b) How can you check that you have found all the factors?

5 **a)** Which numbers are factors of 30?

5 **15** **25** **3** **30** **4** **2** **12** **60** **0**

b) These numbers are all factors of a 2-digit number.

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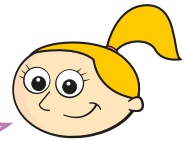
What could the number be?

6 Amir and Eva are describing numbers using factors.

The number 11 does not have any factors.

Amir

My number lies between 20 and 25. It only has two factors.



Eva

a) Is Amir correct?

Explain your answer.

b) What number is Eva thinking of?

7 Which number has the most factors?

64 **48**

8 Explain the mistakes that have been made.

a) 20, 30 and 40 are all factors of 10

b) 0.5 is a factor of 8 as 16 halves equals 8

9 How do we know that these statements are true?

a) 5 is a factor of 195 but not a factor of 196

b) 3 is a factor of 177 but not a factor of 178

c) 20 is a factor of 180 but not a factor of 190

10 Is this statement always, sometimes or never true?

A number will always have an even number of factors because factors come in factor pairs.