

Dividing numbers up to 4 digits by a 2-digit number ⑥

- 1** a) Amelia has 2,000 ml of juice. She fills each ice-lolly mould with 75 ml of juice. How many ice lollies can she make, and how much juice will be left?



- b) Bella has 2,500 ml of juice and she uses 95 ml of juice for each ice lolly. Will she have more or less juice left than Amelia?



- c) What fraction of an ice lolly can Amelia and Bella each make with their remaining juice?



2 Complete these divisions.

a) $1,000 \div 11 =$

c) $4,000 \div 22 =$

b) $2,000 \div 11 =$

d) $8,000 \div 22 =$



Explain how the divisions are related and explore the pattern in the answers and the remainders.

3 A school receives £2,515 for new computer equipment. The money is shared equally between 20 classes in the school. How much money does each class get in pounds and pence?



Common factors

1 a) Use these arrays to find all the factors of 14 and 18.

○○○○○○○○○○○○○○○○○○ × = 14

○○○○○○○
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○○○○○○○○○○○○○○○○○○○○○○○○○○○○ × = 18

○○○○○○○○○○
○○○○○○○○○○ × = 18

○○○○○○○
○○○○○○○
○○○○○○○ × = 18

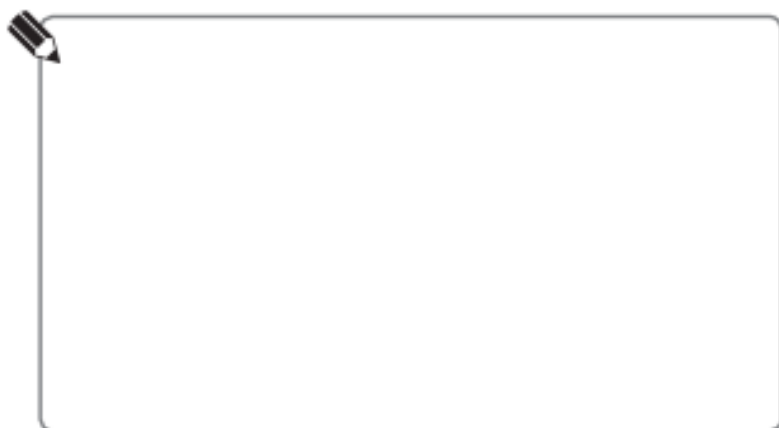
The factors of 14 are , , and .

The factors of 18 are , , , ,
and .

b) List the common factors of 14 and 18.

The common factors of 14 and 18 are and .

c) Draw a diagram to show why 6 is **not** a common factor of 14 and 18.



I will try to draw an array like those in part a).



- 4 a) Complete the table to show all the factors of 35, 50 and 70.

Factors of 35	Factors of 50	Factors of 70



CHALLENGE

Circle the common factors of all three numbers.

- b) Lexi thinks of three numbers that have the common factors 1, 2, 3, 4 and 5. What could Lexi's numbers be?

Reflect

Find all the common factors of 15 and 60.

Do you need to check all the numbers up to 60?



2 Complete these lists, then find the common factors of 40 and 100.

$1 \times \square = 40$


$1 \times \square = 100$

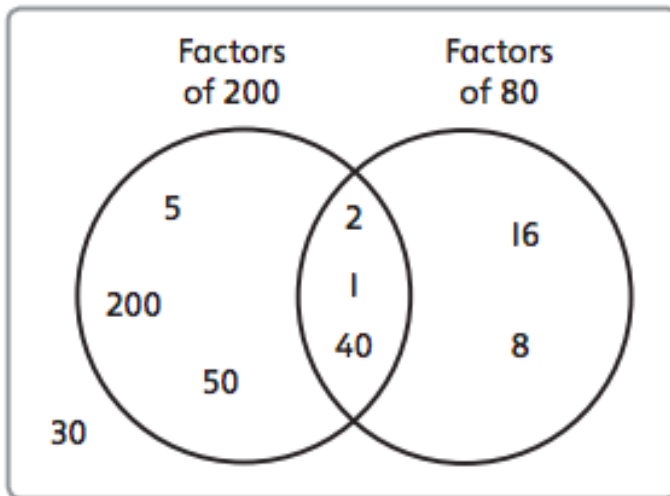
$\square \times \square = 40$

$\square \times \square = 40$

$\square \times \square = 40$

The common factors of 40 and 100 are _____.

3 Max has made **two** mistakes. Find them and prove they are mistakes. 



I wonder if all the factors of 80 and 200 are here? I could add some more.



is in the wrong place because _____

is in the wrong place because _____

Common multiples

- 1 On the 100 square, multiples of 8 have been circled.

Shade all the multiples of 6.

Then list the common multiples of 6 and 8.

The common multiples of 6 and 8 up to 100 are ,
, and .

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- 2 a) Circle the common multiples of 3 and 7 on the 100 square.

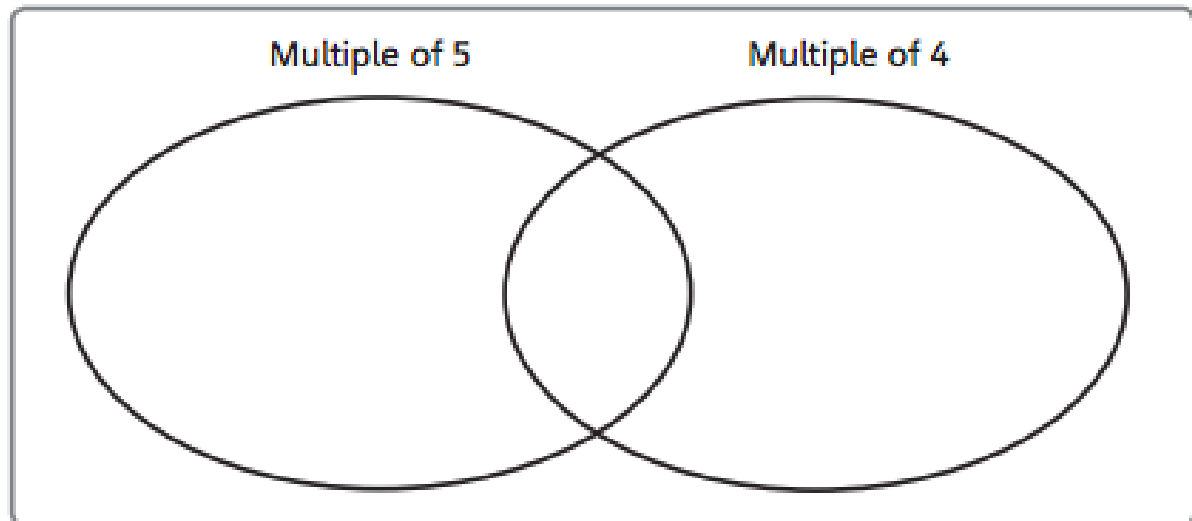
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- b) Circle the common multiples of 5 and 15 on the 100 square.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- 3 Write these numbers on the sorting diagram.

40, 15, 16, 60, 6, 20, 30, 45, 100



Describe what you notice about all the numbers that are common multiples of 4 and 5.

I notice that all the common multiples of 4 and 5 _____

_____ .

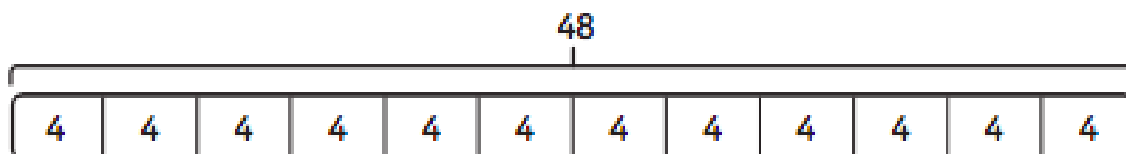
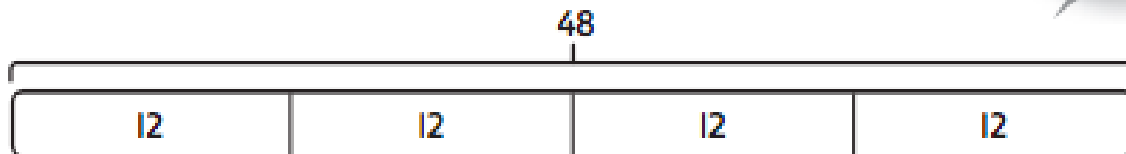
- 4 List all the common multiples of 20 and 30 between 200 and 400.



A large empty rectangular box for writing the answer to question 4.

CHALLENGE

- 5 Andy says: 'My bar model shows that 48 is a common multiple of 4 and 12. I worked out that 48 and 96 are the only common multiples of 4 and 12 up to 100.'



- a) Explain how Andy's bar model shows that 48 is a common multiple of 4 and 12.

- b) Has Andy found all the common multiples of 4 and 12 up to 100? Explain.

Reflect

Find three different common multiples of 20 and 25.

Explain how you found them.

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- ---
- ---
- ---

Recognising prime numbers up to 100

- 1 Draw an array to prove that 49 is not a prime number.



This proves that 49 is not prime because it shows that

$$49 \div \square = \square .$$

So, factors of 49 are \square , \square and \square .

- 2 Check whether 51, 53 and 55 are prime numbers.



I know \square is not a prime number because _____

_____ .

I know \square is not a prime number because _____

_____ .

\square is a prime number because _____

_____ .

CHALLENGE

5 '23 is a prime number, so 123 and 223 must be prime numbers too.'

Do you agree?

Explain or show your reasoning.



Reflect

Explain how to show whether 85 and 89 are prime numbers.