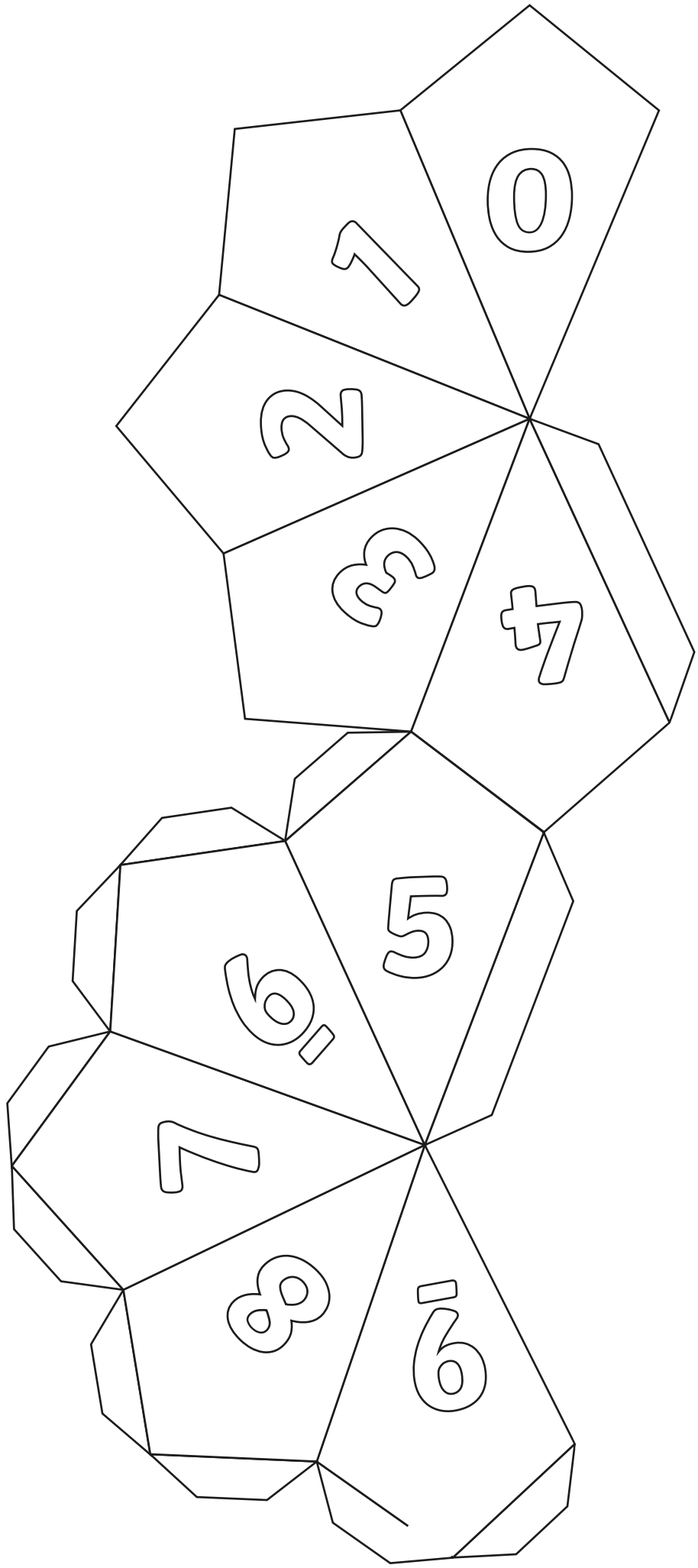

-20 to 20 Number Line

-20 -19 -18 -17 -16 -15 -14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

-20 to 20 Number Line

-20 -19 -18 -17 -16 -15 -14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

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-20 to 20 Number Line

-20 -19 -18 -17 -16 -15 -14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Blank ThHTO Place Value Chart

Thousands Th	Hundreds H	Tens T	Ones O

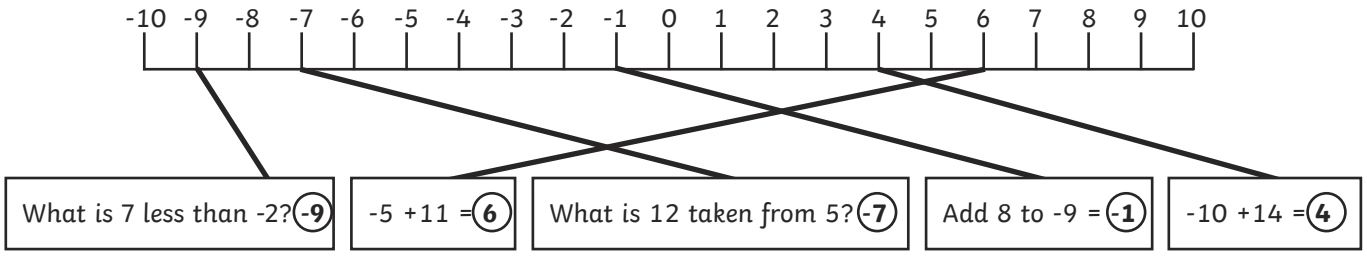
Header 1 (22pt to 33pt) **Answers**

1. Question one? Select 'Numbered Bullets' from Paragraph Styles.
   Answer one. Add a soft return after the question, using shift+return and then set the character style to 'bold'. Change the styles to the KS1 equivalent if required.

2. Question two?
   This style can be used for a simple question-answer format. The table format, shown below, can be used for resources that include sections and would benefit from more structure.

Question	Answer
1. Question 1; numbers written in manually.	
a	
b	
c	
d	

1)



2)

The temperature was -17°C at night and, during the day, it rose by 15°C. What was the new temperature?	**-2°C**
The temperature on one day was 35°C but the next day had fallen by 49°C. What was the temperature on the second day?	**-14°C**
The temperature falls by 35°C. It is now -18°C. What was the original temperature?	**17°C**

3)

Town	January	Temperature change	February	Temperature change	March
Twinkl Town	-5°C	+8°C	**3°C**	+7°C	**10°C**
Education Avenue	-1°C	**-8°C**	-9°C	**+10°C**	1°C
Learning Lane	-11.3°C	**-6°C**	-17.3°C	**+12°C**	-5°C

1)

Country	Minimum Temperature	Maximum Temperature	Temperature range
Finland	-20°C	19°C	29°C **39°C**
Japan	-2°C	26°C	28°C **Correct**
Russia	-30.6°C	16.9°C	46.5°C **47.5°C**
UK	-1.5°C	17.3°C	18.2°C **18.8°C**

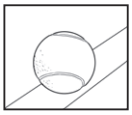
a) **False. The UK has an average temperature range of 18.8°C.**

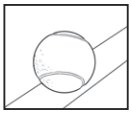
b) **False. Japan has an average minimum temperature of -2°C and the UK has an average minimum temperature of -1.5°C. Therefore, the UK's temperature is warmer than Japan's and should be ordered after it. The correct order should be: Russia, Finland, Japan, UK.**

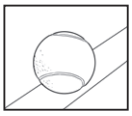
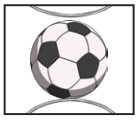
c) **True. The difference between -30.6°C and 26°C is 56.6°C.**

1) **-1°C**

2) **Accept any correct number sentences, such as:**

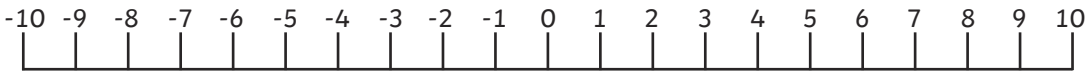
 **= -10 and**  **= 25 so -10 + 25 = 15**

 **= -100 and**  **= 115 so -100 + 115 = 15**

 **= -6.25 and**  **= 21.25 so -6.25 + 21.25 = 15**

Accept any answer that identifies that two positive numbers could be added to make 15 but two negative numbers could not be added to make 15.

1) Match these statements with the correct place on the number line.



What is 7 less than -2?	-5 +11 =	What is 12 taken from 5?	Add 8 to -9 =	-10 +14 =

2) Solve these temperature problems.

The temperature was -17°C at night and, during the day, it rose by 15°C. What was the new temperature?

_____

The temperature on one day was 35°C but the next day had fallen by 49°C. What was the temperature on the second day?

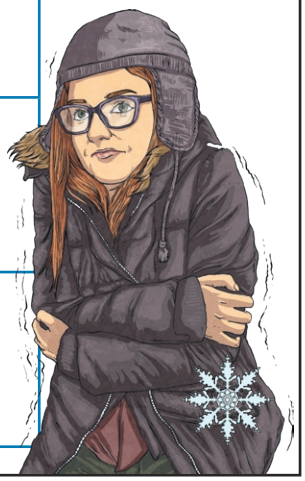
_____

The temperature falls by 35°C. It is now -18°C. What was the original temperature?

_____

3) This table shows how the temperature changed on three different streets around the world. Complete the table to show how the temperatures changed over three months.

Town	January	Temperature change	February	Temperature change	March
Twinkl Town	-5°C	+8°C	____°C	+7°C	____°C
Education Avenue	-1°C	____°C	-9°C	____°C	1°C
Learning Lane	-11.3°C	____°C	-17.3°C	____°C	-5°C



1) Oliver has found the minimum and maximum average temperatures for four countries around the world. He has calculated the temperature range for each country.
Can you identify his mistakes and correct them?

Country	Minimum Temperature	Maximum Temperature	Temperature range
Finland	-20°C	19°C	29°C
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Using the table, explain whether the following statements are true or false.

a) No country has an average temperature range less than 25°C. _____

b) If you order the countries by their average minimum temperature, from coldest to warmest, they would be: Russia, Finland, UK and Japan.

_____

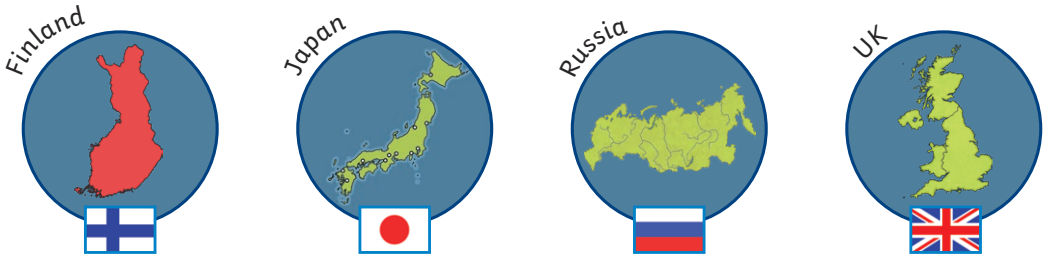
c) The difference in temperature between the coldest minimum temperature and the hottest maximum temperature is less than 60°C.

_____

Look at the information in the table and make your own true or false statement for a partner.
Can they identify whether your statement is true or false?

_____

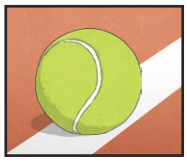
_____



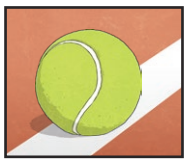
1) Jai measured the morning temperature of the school playground for one week. On day one, the temperature was -6.5°C. On day two, the temperature increased by 5.7°C. On day three, it dropped by 5.3°C. On day four, it increased by 6.9°C and on day five, it dropped by 1.8°C.

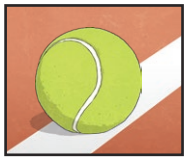
What was the temperature by the end of day 5? _____

2)

 = A positive or negative number

 = A positive or negative number

Investigate the possible values of  and  if:

 +  = 15

Can you use any decimal numbers to make 15?

_____

Is it possible to have two positive or two negative numbers to complete the calculation?

_____

_____

1) Complete these calculations.

a) What is 7 less than -2?

b) -5 +11 =

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twinkl.com

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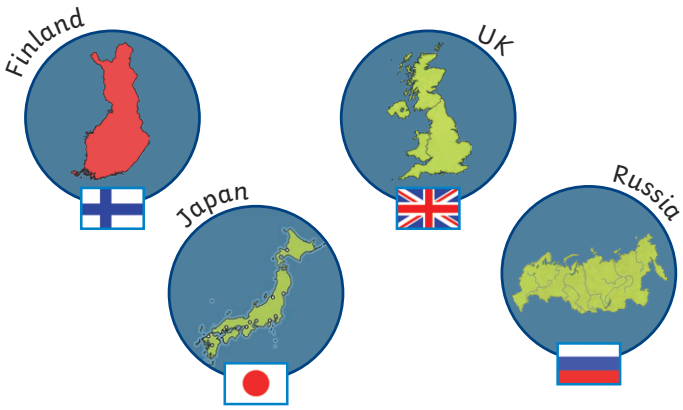

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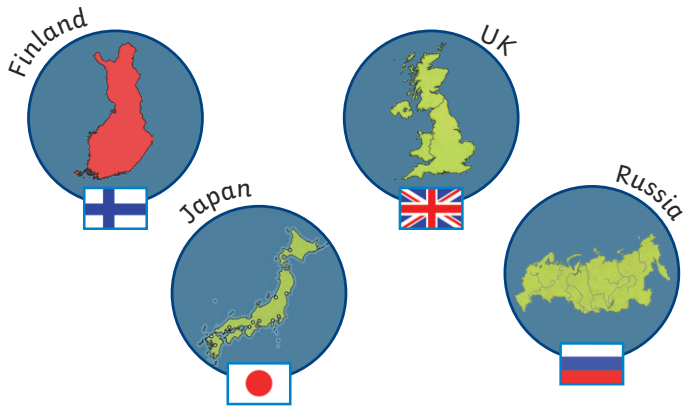
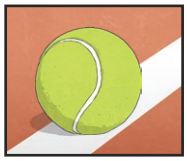


1) Jai measured the morning temperature of the school playground for one week. On day one, the temperature was -6.5°C. On day two, the temperature increased by 5.7°C. On day three, it dropped by 5.3°C. On day four, it increased by 6.9°C and on day five, it dropped by 1.8°C.

What was the temperature by the end of day 5?

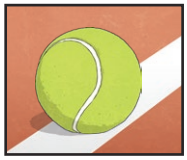
_____

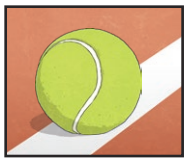
2)

 = A positive or negative number

 = A positive or negative number

Investigate the possible values of

 and  if:

 +  = 15

Can you use any decimal numbers to make 15?

_____

_____

Is it possible to have two positive or two negative numbers to complete the calculation?

_____

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Jai

What was the temperature by the end of day 5?

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2)

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Investigate the possible values of

and if:

+ = 15

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_____

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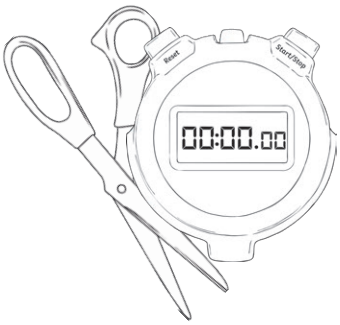
_____

_____

Extra Challenge

To calculate mentally with increasingly large numbers using all four operations.



Cut out the cards. In any order, complete the calculations. How many calculations can you complete in five minutes? Use a sand-timer, stopwatch or a clock to help you keep track of the time.

Repeat the task for a further five minutes. **Did you beat your previous record?**

5385 + 4935 =	543.6 + 59.5 =	938 + 1094 =
$49\frac{2}{4}$ + 74.5 =	$85\frac{2}{5}$ + 54.3 =	998 - 385 =
3.005 + 6.12 =	9.48 - 3.52 =	583 - 259 =
45.75 × 100 =	58.05 × 10 =	57 ÷ 2 =
137 ÷ 4 =	844 ÷ 8 =	49 × 4 =
243 × 3 =	175 ÷ 5 =	45.45 - 25.5 =

Extra Challenge **Answers**

Question	Answer
1. How many calculations can you complete in five minutes?	
5385 + 4935 =	10 320
543.6 + 59.5 =	603.1
938 + 1094 =	2032
49 – + 74.5 =	124
$85\frac{2}{5}$ + 54.3 =	139.7
998 - 385 =	613
3.005 + 6.12 =	9.125
9.48 - 3.52 =	5.96
583 - 259 =	324
45.75 × 100 =	4575
58.05 × 10 =	580.5
57 ÷ 2 =	28.5
137 ÷ 4 =	34.25
844 ÷ 8 =	105.5
49 × 4 =	196
243 × 3 =	729
175 ÷ 5 =	35
45.45 - 25.5 =	19.95

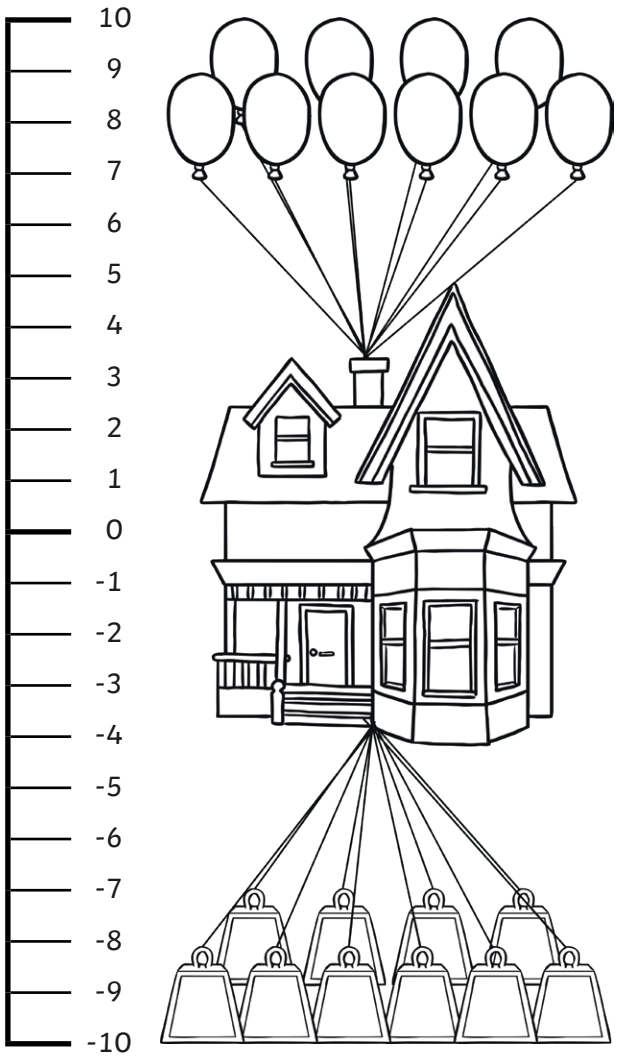
Negative Calculations

To calculate intervals across zero.

When calculating with positive and negative numbers, it is helpful to think of balloons and weights.

Positive numbers are like balloons. If you add balloons, the house will go up. If you take balloons away, the house will go down.

Negative numbers are like weights. If you add weights, the house will go down. If you take weights away, the house will go up.



This idea of balloons and weights can help us to solve calculations. Think of positive numbers as balloons. For example, if we see the calculation 3 + 4, we know that adding 4 balloons will cause the house to go up by 4, so the number will get bigger. The answer is of course 7. If we see 4 - 6, we know that taking away 6 balloons will cause the house to go down by 6, so the number will get smaller. The answer is -2.

When we calculate with negative numbers, we need to think of them as weights. In the calculation 7 + -5, we are adding 5 weights. This would cause the house to go down by 5 and the number would get smaller. The answer is 2. If we see 6 - -2, we are taking away 2 weights, so the house will actually go up by 2 and the number will get bigger. The answer is 8.

Use the idea of adding and taking balloons and weights to solve these calculations involving both positive and negative numbers.

3 + -7 =	-2 - 7 =	5 - -2 =	5 + -9 =	10 + -3 =
-5 + 3 =	8 - -6 =	2 - -5 =	3 + -2 =	1 - -1 =

Negative Calculations **Answers**

3 + -7 = **-4**	-2 - 7 = **-9**	5 - -2 = **7**	5 + -9 = **-4**	10 + -3 = **7**
-5 + 3 = **-2**	8 - -6 = **14**	2 - -5 = **7**	3 + -2 = **1**	1 - -1 = **2**

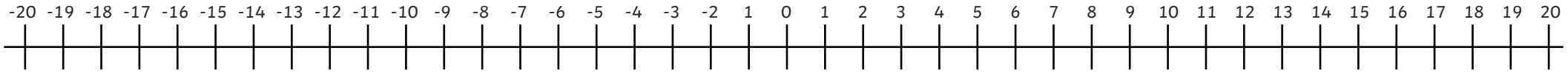
Find a Path

To calculate intervals across zero.

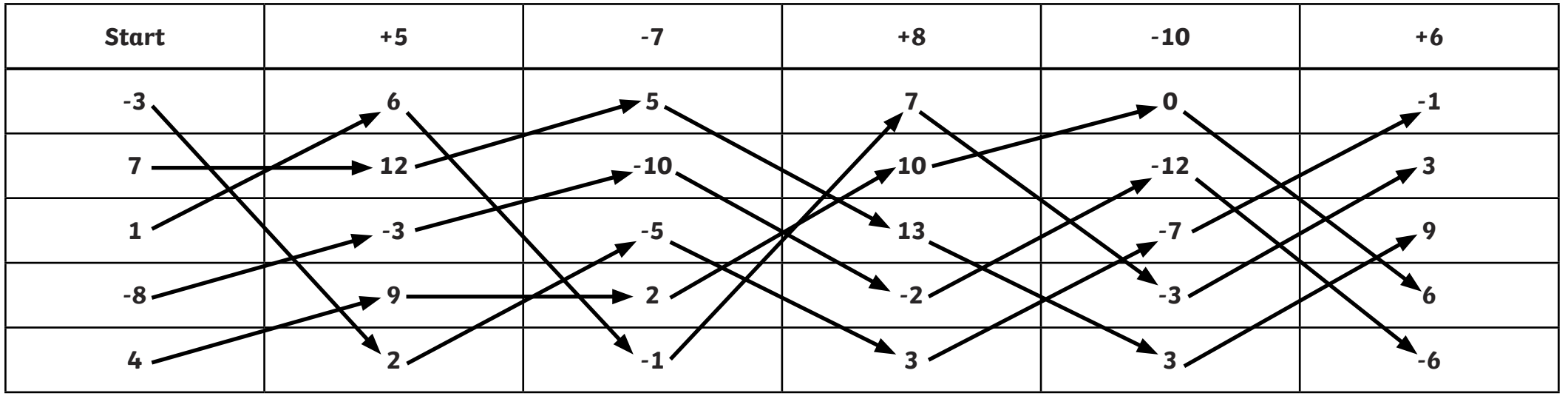
Find the different paths through this table. For each starting number, complete each calculation shown in the column heading, then join the starting number to the answer with a line. Move across the table in this way until you reach the other side. You might want to use a different colour for each path.

The first one has been done for you:

Start	+5	-7	+8	-10	+6
-3	6	5	7	0	-1
7	12	-10	10	-12	3
1	-3	-5	13	-7	9
-8	9	2	-2	-3	6
4	2	-1	3	3	-6



Find a Path **Answers**



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The first one has been done for you:

Start	+5	-17	+22	-31	+26
6	-5	-22	0	-15	22
17	11	-4	7	-24	-5
-10	22	-15	16	-13	11
8	2	5	27	-31	2
-3	13	-6	18	-4	13

Find a Path **Answers**

Start	+5	-17	+22	-31	+26
6	-5	-22	0	-15	22
17	11	-4	7	-24	-5
-10	22	-15	16	-13	11
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-3	13	-6	18	-4	13

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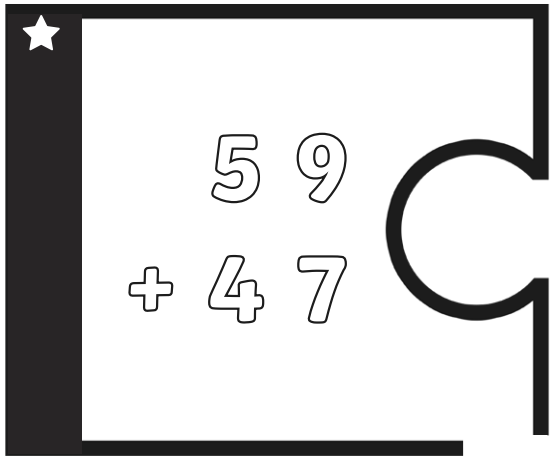
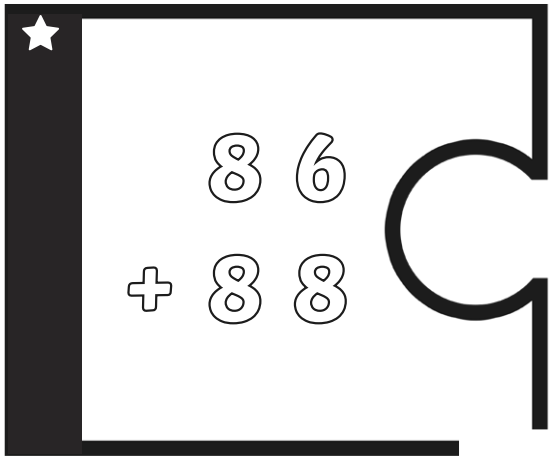
The first one has been done for you:

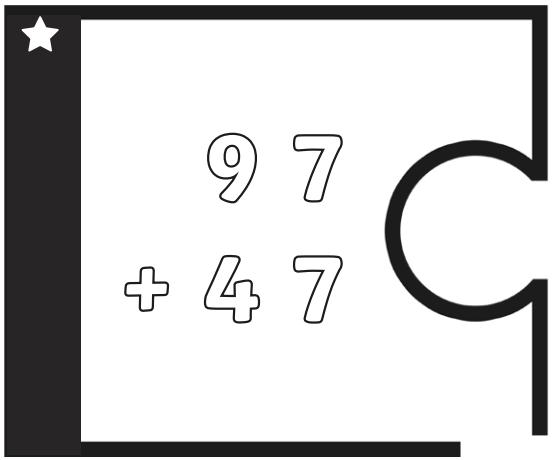
Start	+14	-27	+45	-11	+13.5
-23	16.5	-36	39	20.8	46.5
2.5	13.8	-13.2	34.5	-2	37
7	21	-1	44	33	41.5
-0.2	-9	-10.5	9	28	34.3
12	26	-6	31.8	23.5	11.5

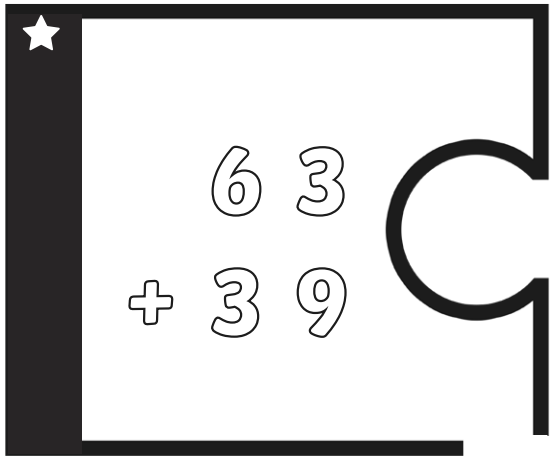
Find a Path **Answers**

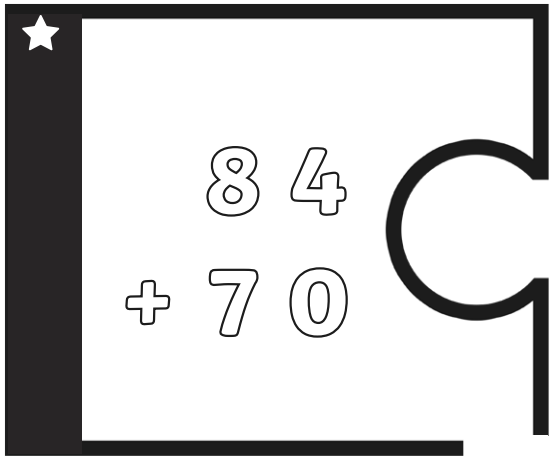
Start	+14	-27	+45	-11	+13.5
-23	16.5	-36	39	20.8	46.5
2.5	13.8	-13.2	34.5	-2	37
7	21	-1	44	33	41.5
-0.2	-9	-10.5	9	28	34.3
12	26	-6	31.8	23.5	11.5

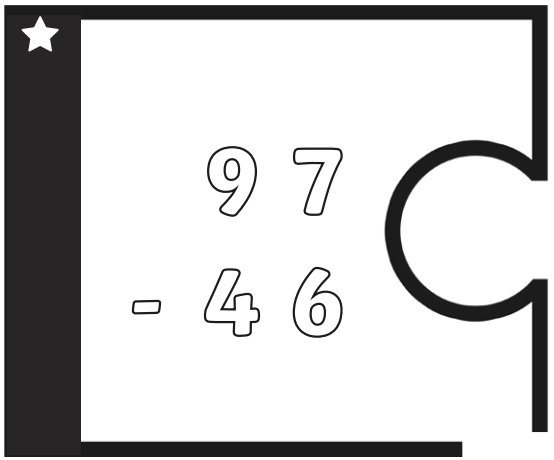


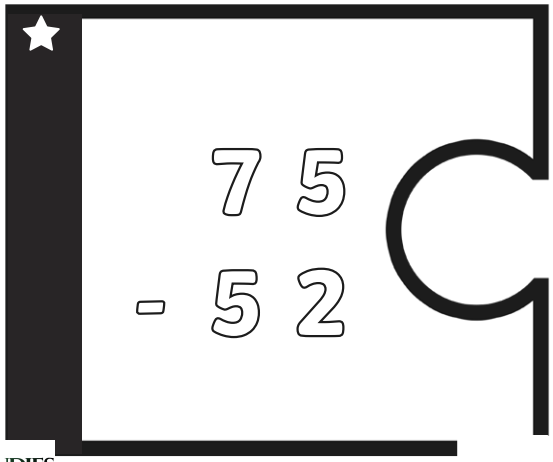


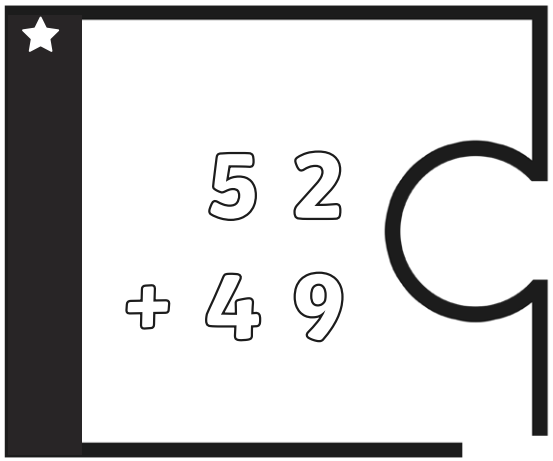


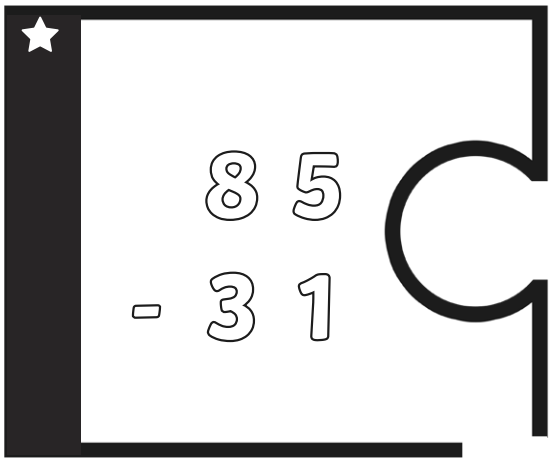


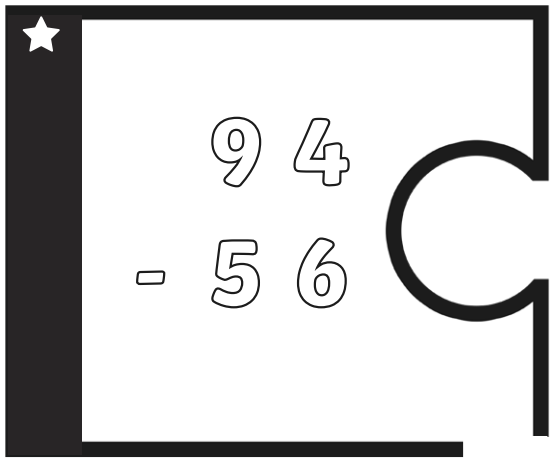


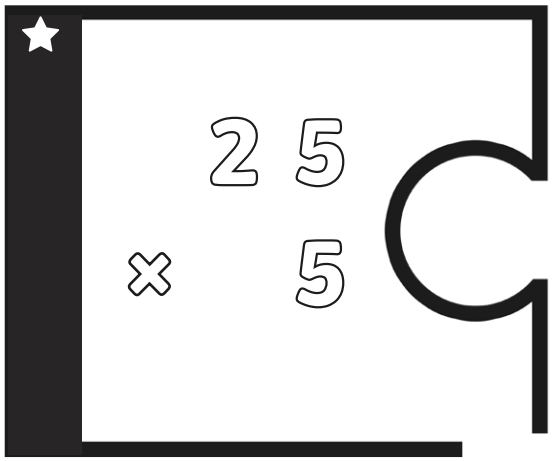


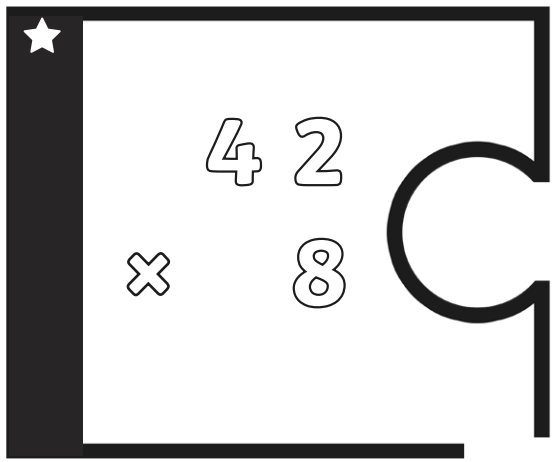


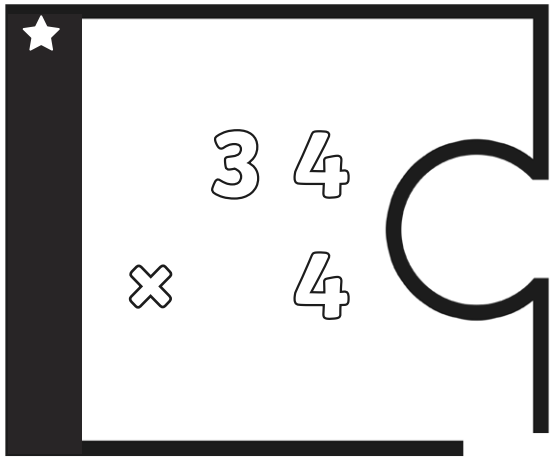


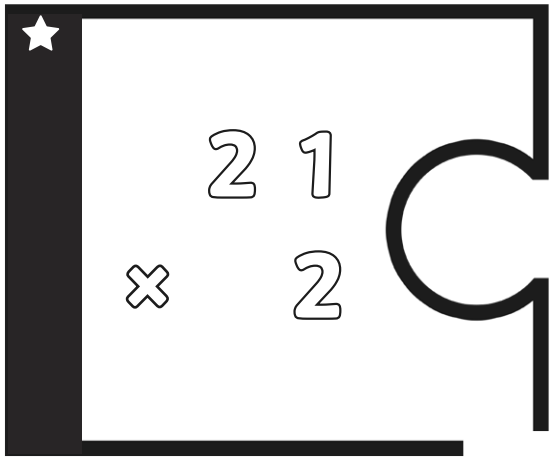


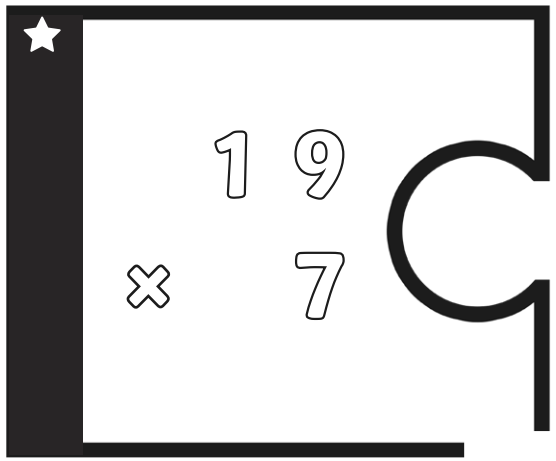


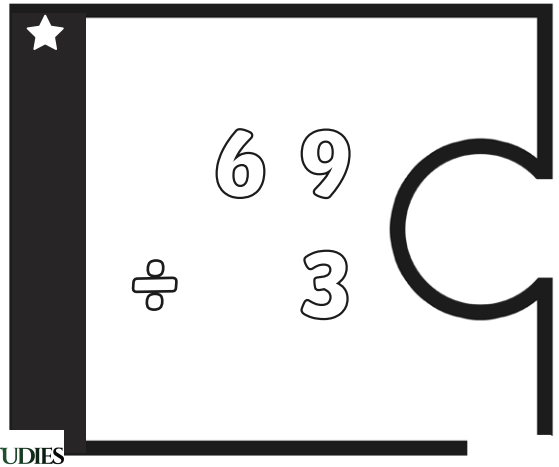


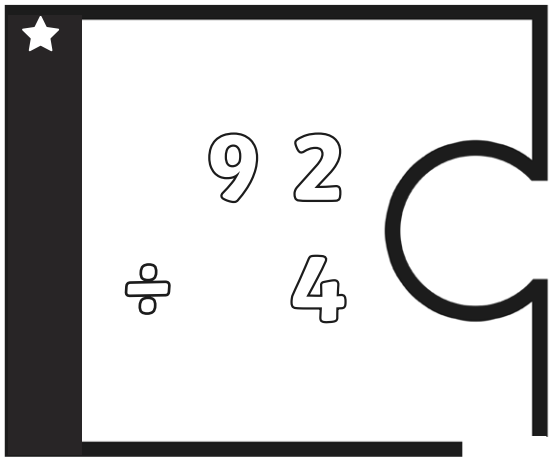


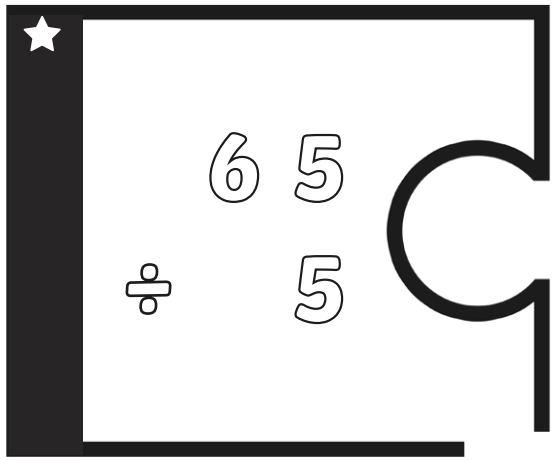


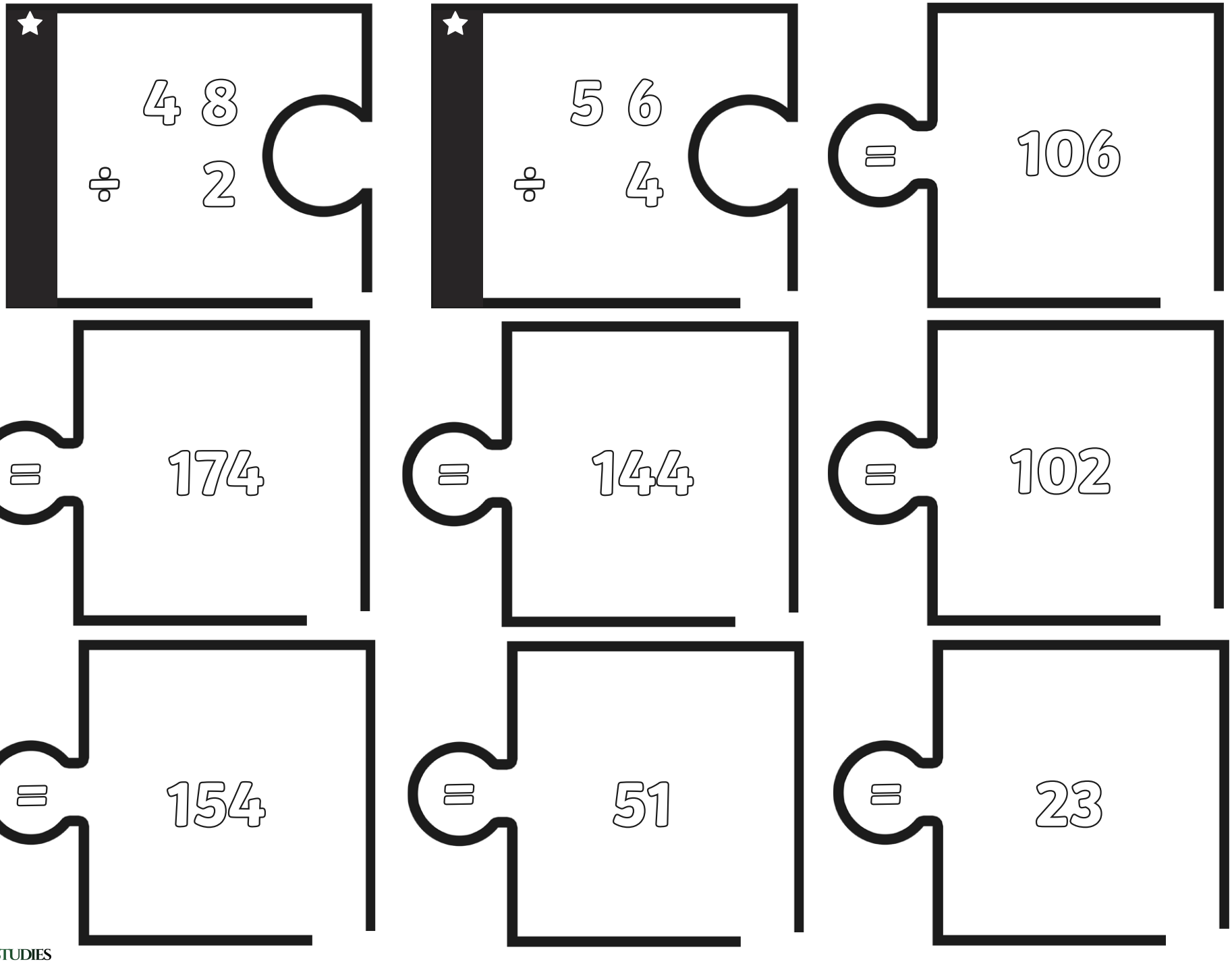


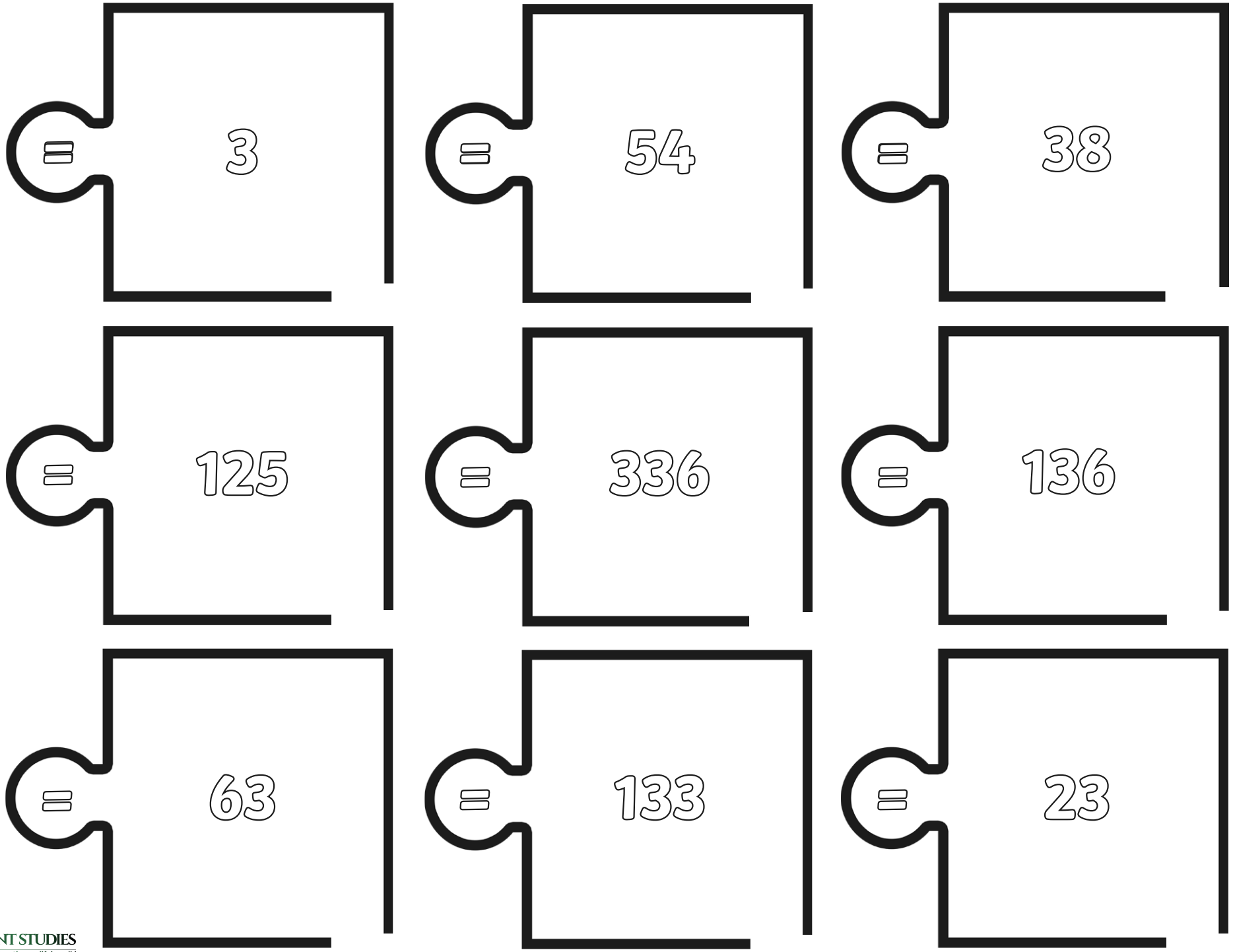


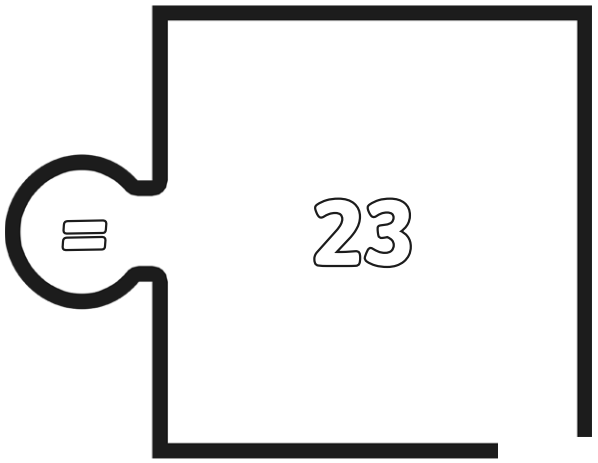


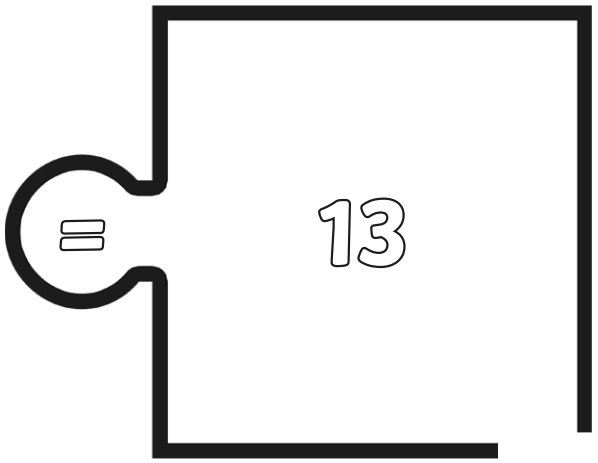


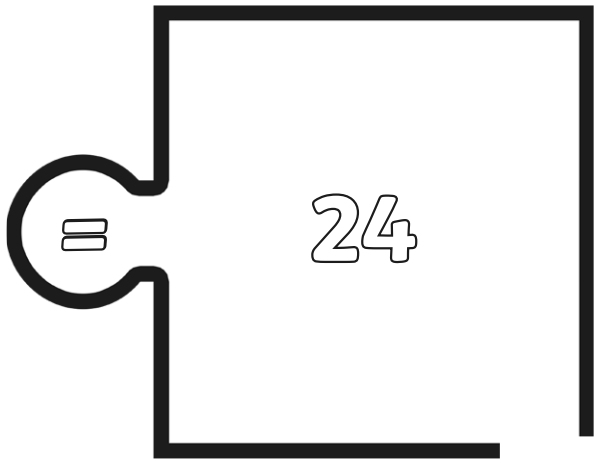


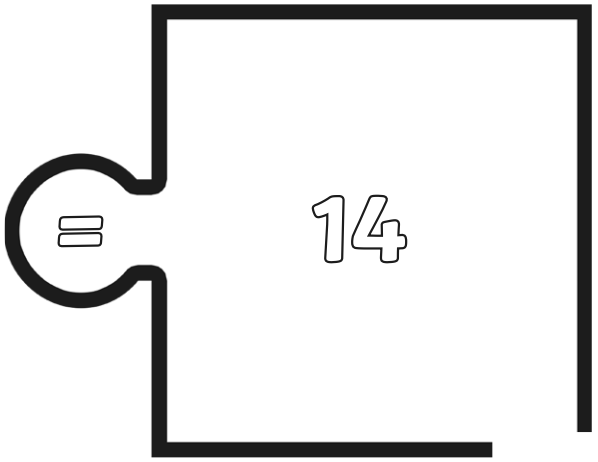












Number Puzzle Activity Cards **Answers**

Question	Answer
59 + 47 =	106
86 + 88 =	174
97 + 47 =	144
63 + 39 =	102
84 + 70 =	154
97 - 46 =	51
75 - 52 =	23
52 - 49 =	3
85 – 31 =	54
94 - 56 =	38
25 × 5 =	125

42 × 8 =	336
34 × 4 =	136
21 × 3 =	63
19 × 7 =	133
69 ÷ 3 =	23
92 ÷ 4 =	23
65 ÷ 5 =	13
48 ÷ 2 =	24
56 ÷ 4 =	14

Mental Calculations

582
+193

Mental Calculations

391
+395

Mental Calculations

297
+184

Mental Calculations

394
+879

Mental Calculations

472
+485

Mental Calculations

686
-482

Mental Calculations

497
-287

Mental Calculations

492
-297

Mental Calculations

$$983 + 458$$

Mental Calculations

$$763 - 402$$

Mental Calculations

$$120 \times 4$$

Mental Calculations

$$483 \times 2$$

Mental Calculations

$$150 \times 8$$

Mental Calculations

$$123 \times 3$$

Mental Calculations

$$200 \times 5$$

Mental Calculations

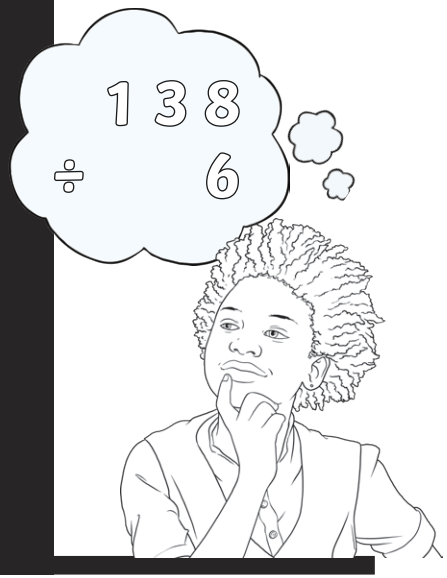
$$148 \div 4$$

Mental Calculations

Mental Calculations

Mental Calculations

Mental Calculations



Number Puzzle Activity Cards **Answers**

Question	Answer
582 + 193 =	775
391 + 395 =	786
297 + 184 =	481
394 + 879 =	1273
472 + 485 =	957
686 - 482 =	204
497 - 287 =	210
492 - 297 =	195
983 - 458 =	525
763 - 402 =	361
120 × 4 =	480

483 × 2 =	966
150 × 8 =	1200
123 × 3 =	369
200 × 5 =	1000
148 ÷ 4 =	37
548 ÷ 2 =	274
129 ÷ 3 =	43
200 ÷ 5 =	40
138 ÷ 6 =	23

Mental Calculations

$$847 + 280$$

Mental Calculations

$$583 + 587$$

Mental Calculations

$$5824 + 2385$$

Mental Calculations

$$3484 + 4739$$

Mental Calculations

$$15.35 + 23.43$$

Mental Calculations

$$582 - 486$$

Mental Calculations

$$845 - 497$$

Mental Calculations

$$54.5 - 33.4$$

Mental Calculations

$$48.56 - 27.4$$

Mental Calculations

$$998 - 584$$

Mental Calculations

$$254 \times 4$$

Mental Calculations

$$894 \times 2$$

Mental Calculations

$$230 \times 8$$

Mental Calculations

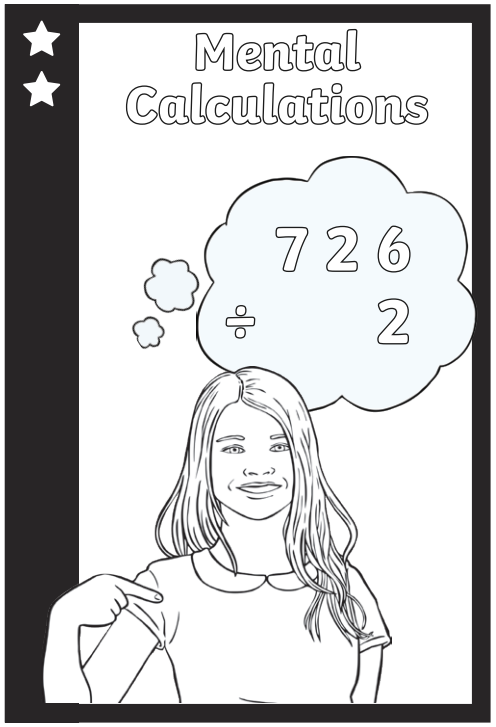
$$139 \times 3$$

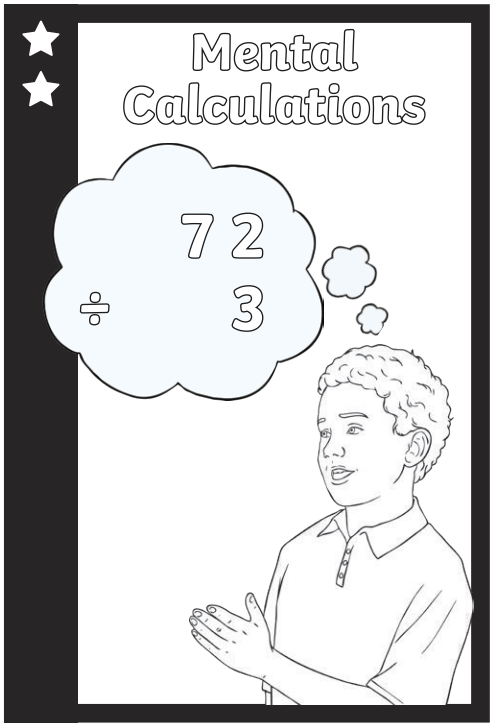
Mental Calculations

$$250 \times 5$$

Mental Calculations

$$96 \div 4$$

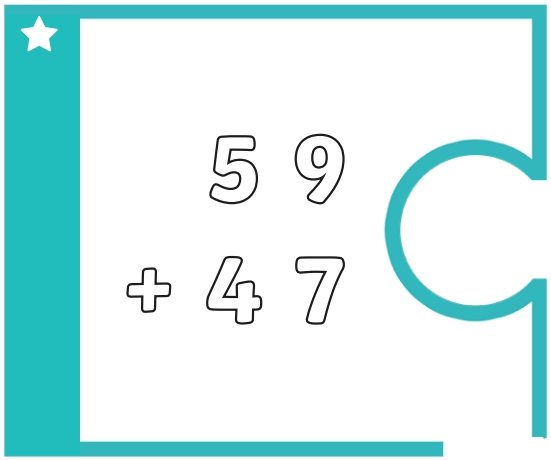


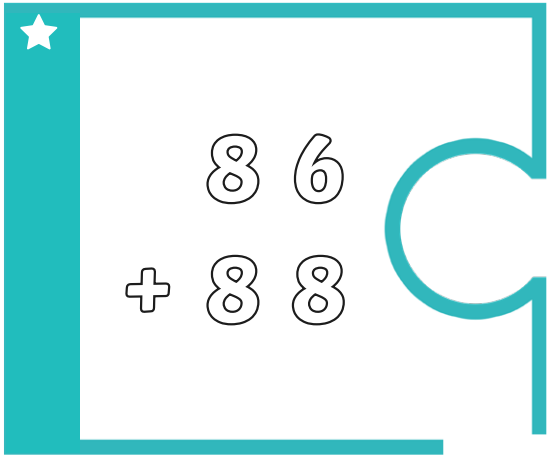


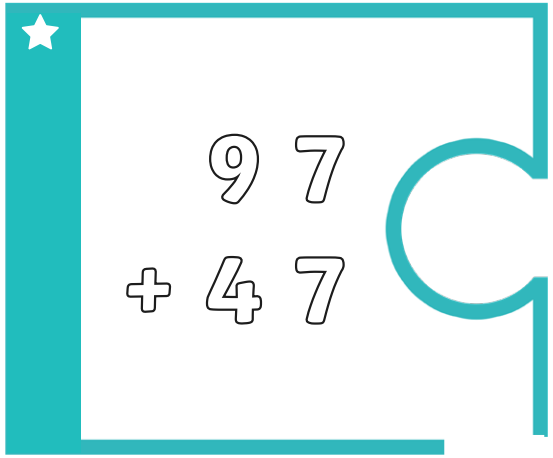
Number Puzzle Activity Cards **Answers**

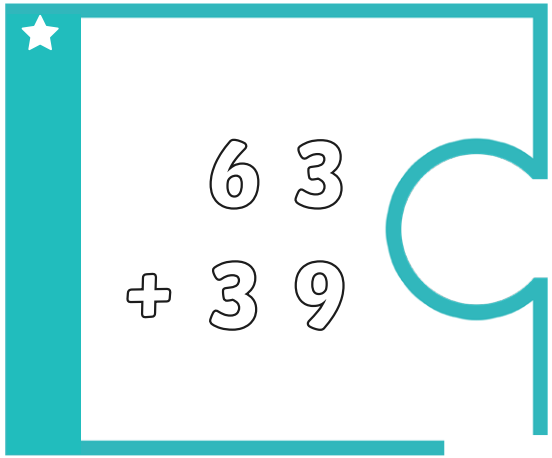
Question	Answer
847 + 280 =	1127
583 + 587 =	1170
5824 + 2385 =	8209
3484 + 4739 =	8223
15.35 + 23.43 =	38.78
582 - 486 =	96
845 - 497 =	348
54.5 - 33.4 =	21.1
48.56 - 27.4 =	21.16
998 - 584 =	414
254 × 4 =	1016

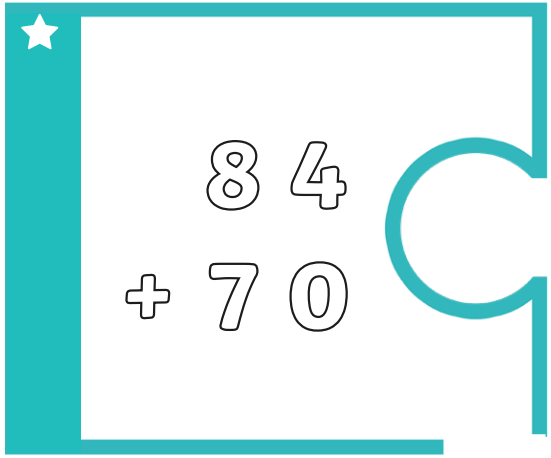
894 × 2 =	1788
230 × 8 =	1840
139 × 3 =	417
250 × 5 =	1250
96 ÷ 4 =	24
726 ÷ 2 =	363
72 ÷ 3 =	24
600 ÷ 5 =	120
246 ÷ 6 =	41

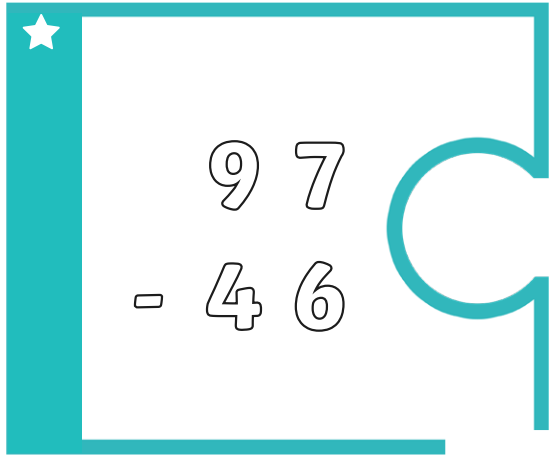


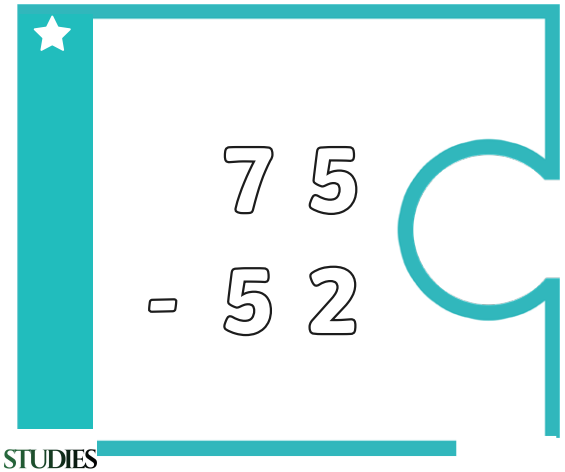


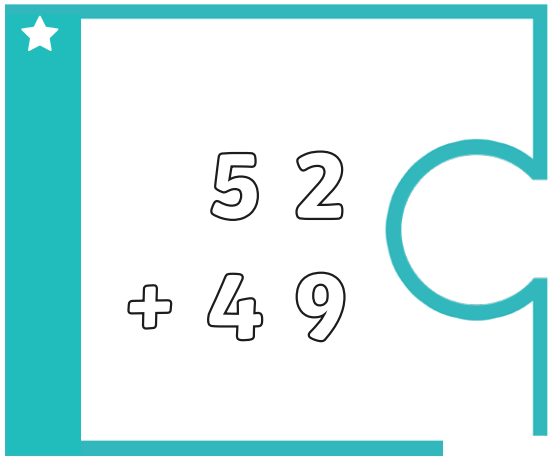


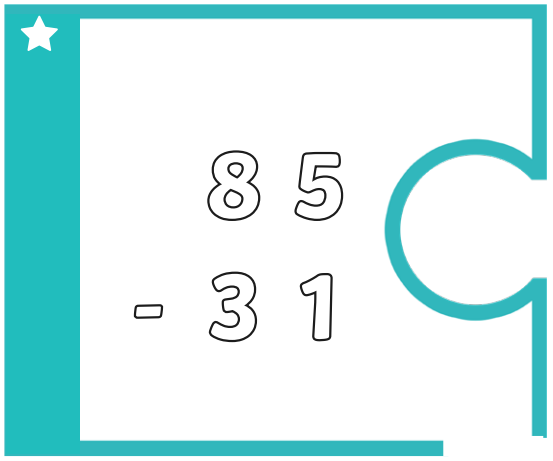


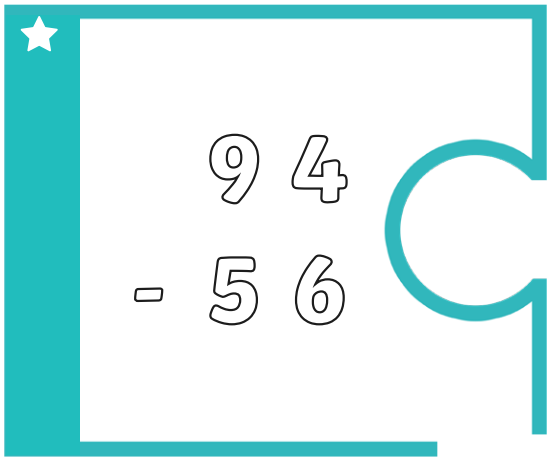


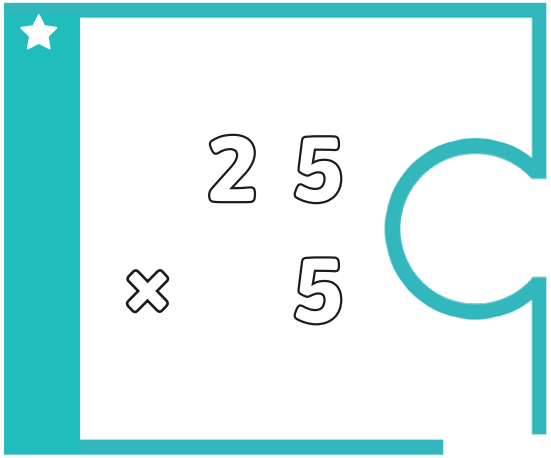


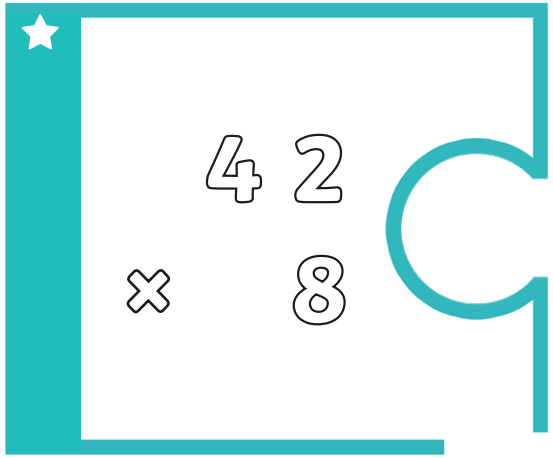


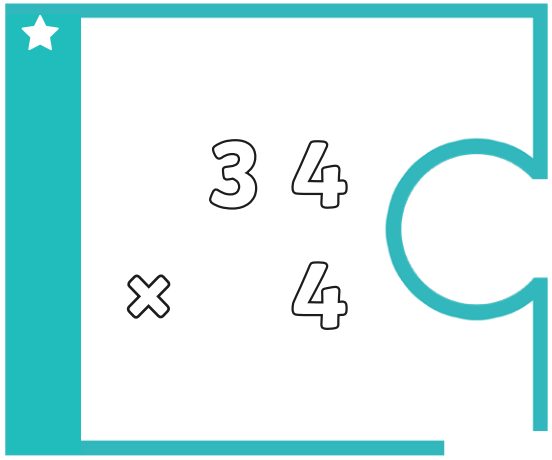


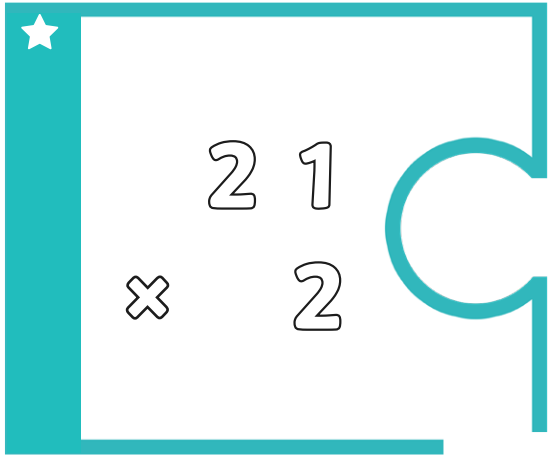


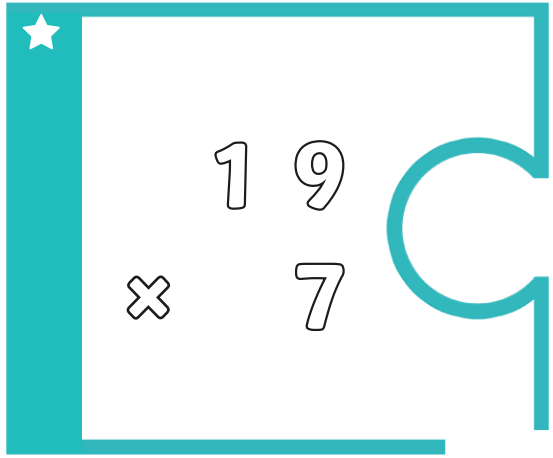


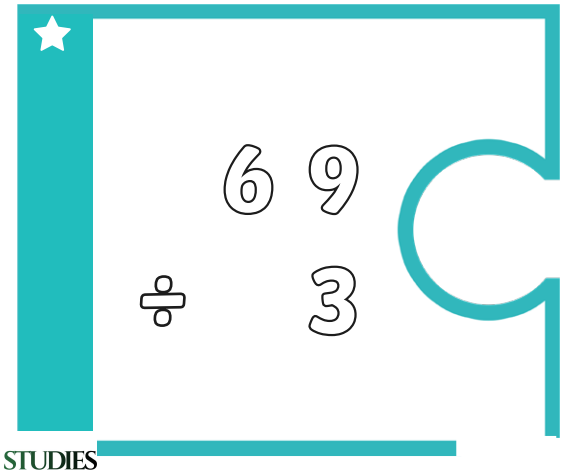


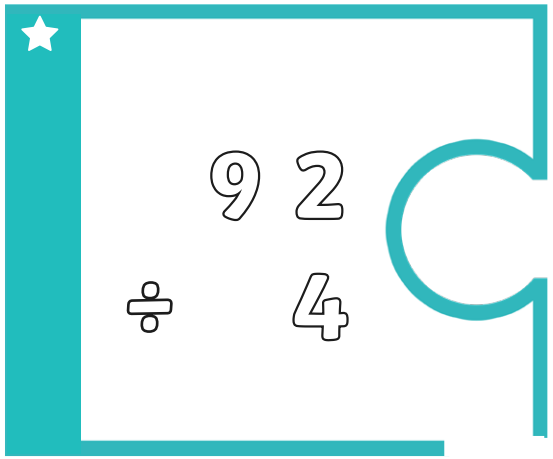


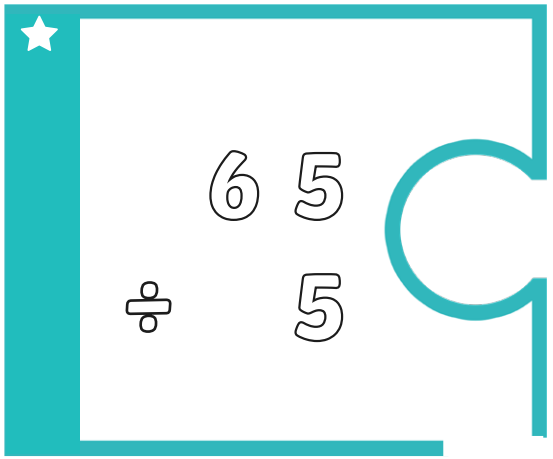


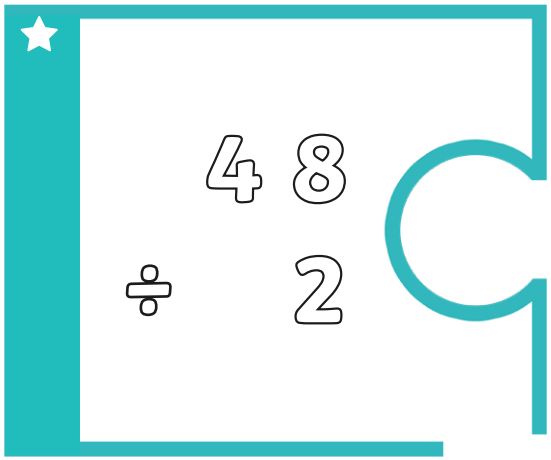


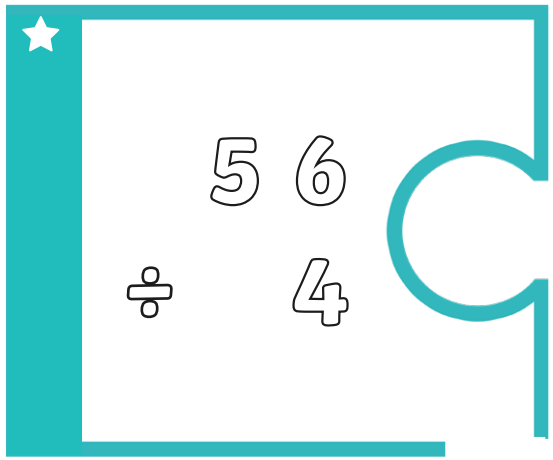


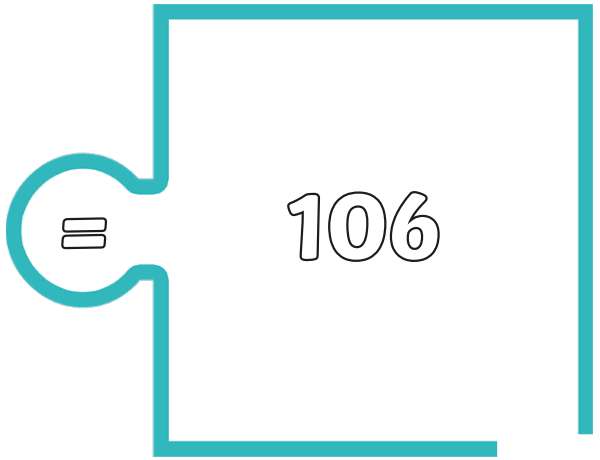


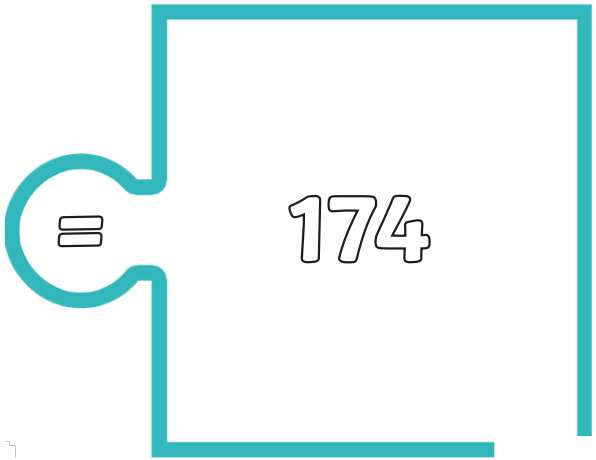


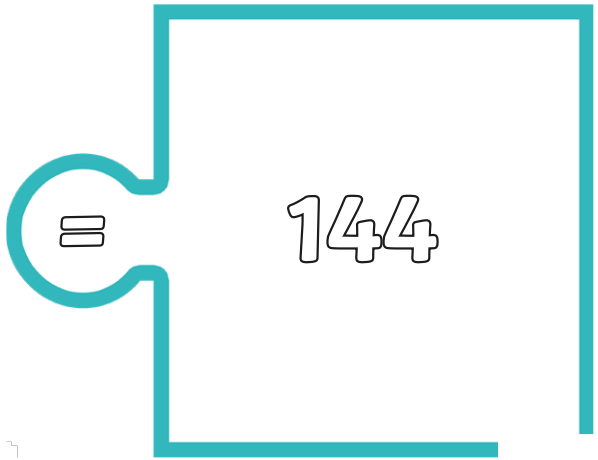


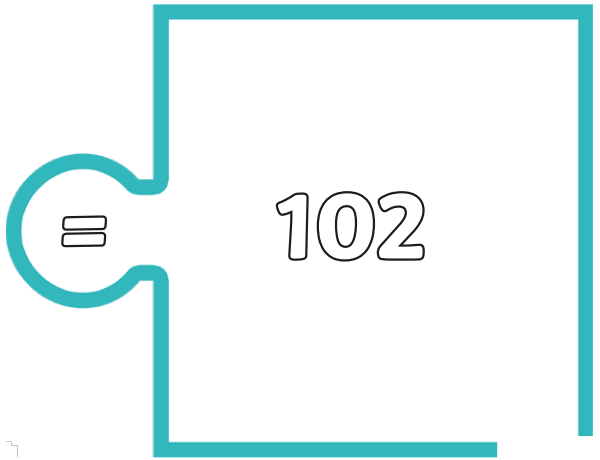


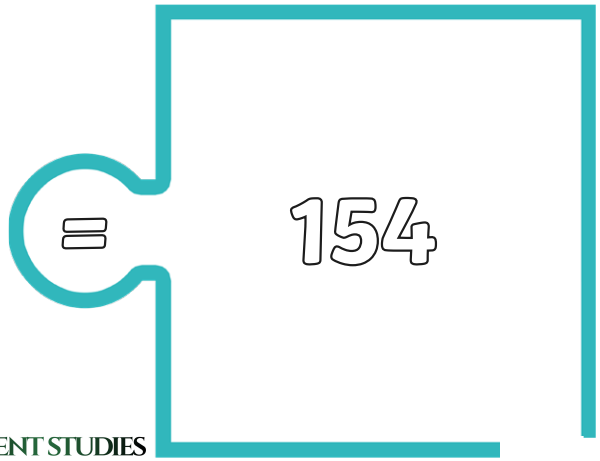


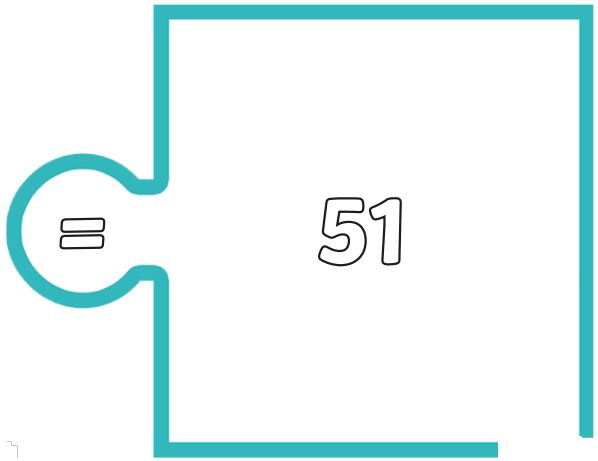


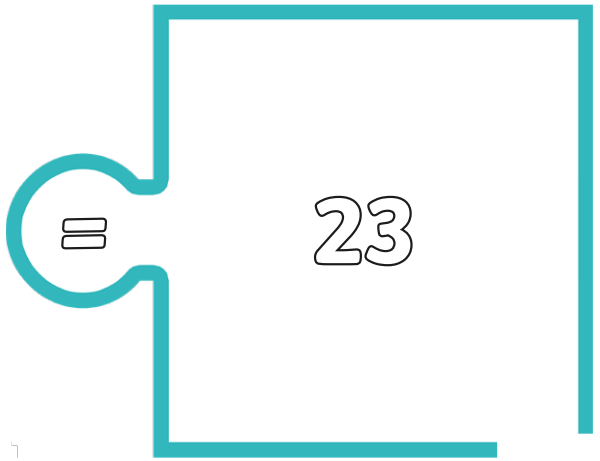


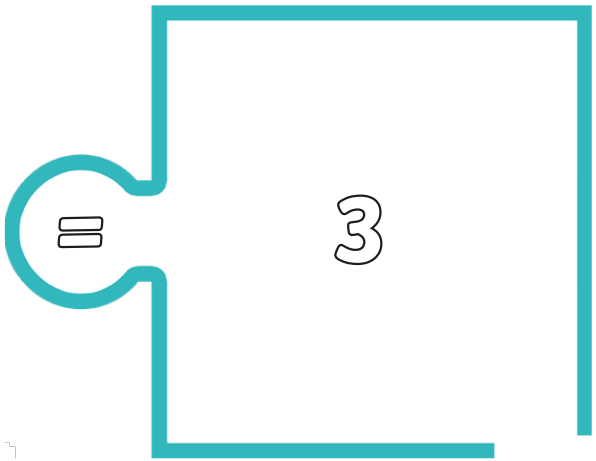


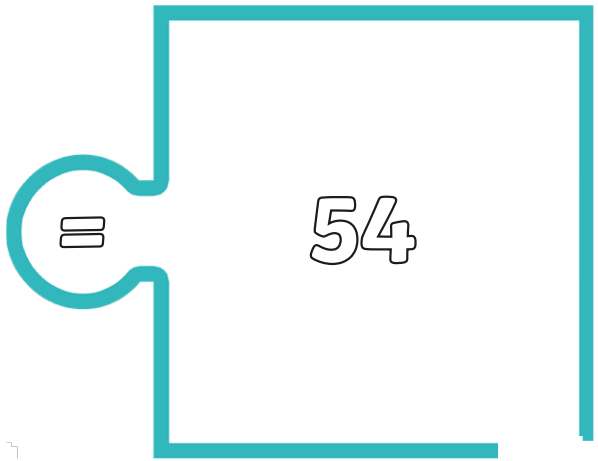


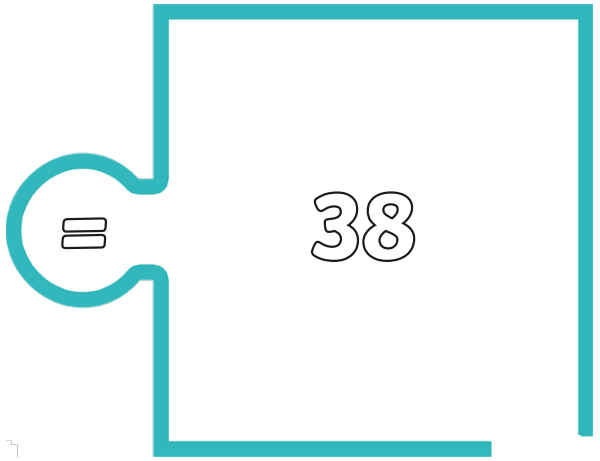


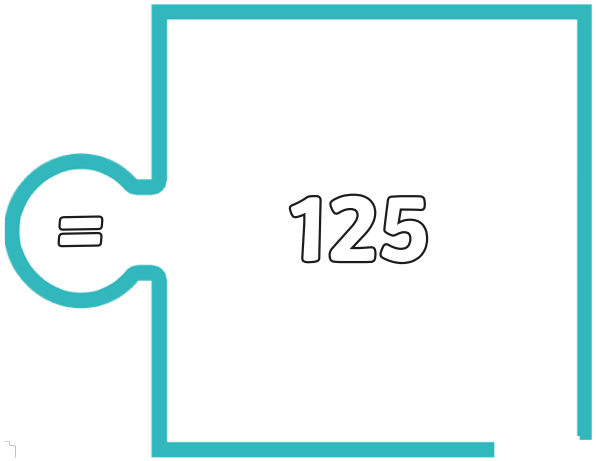


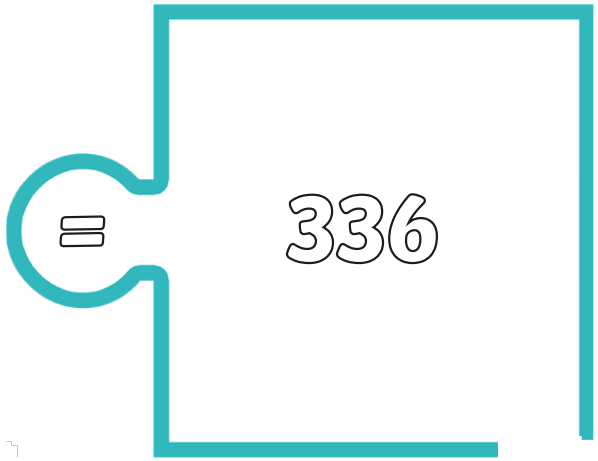


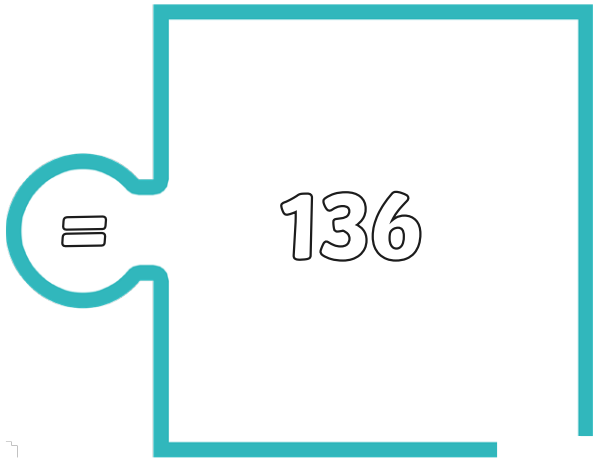


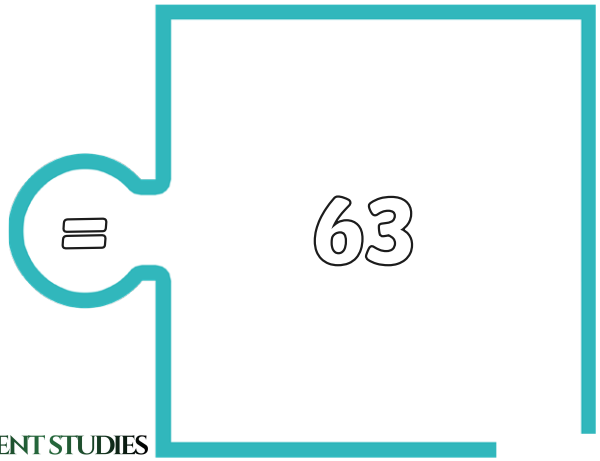


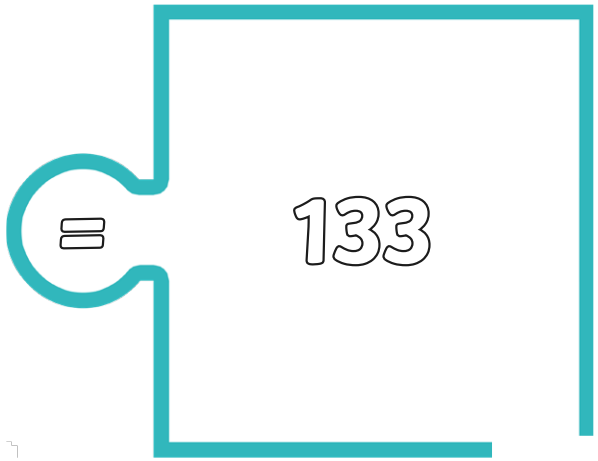


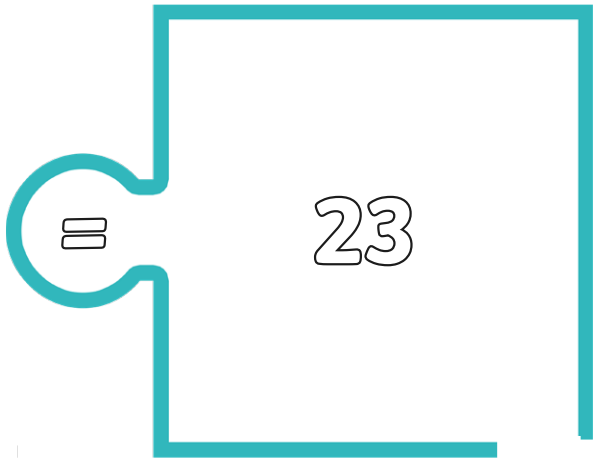


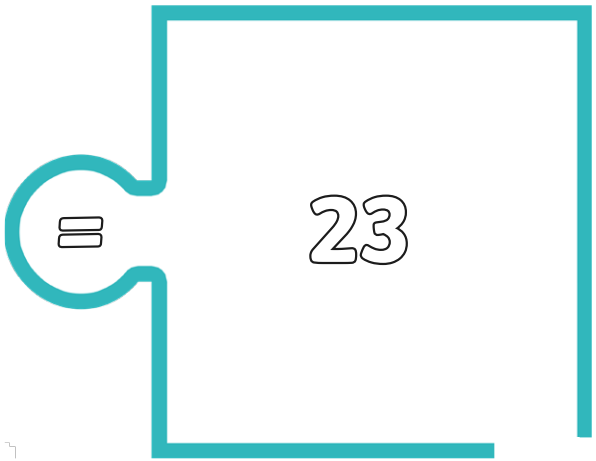


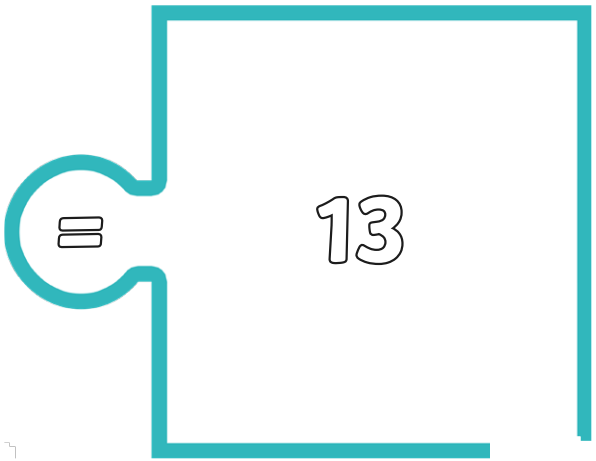


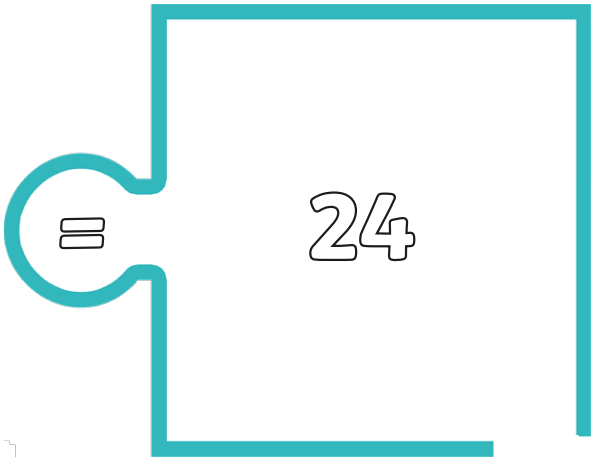


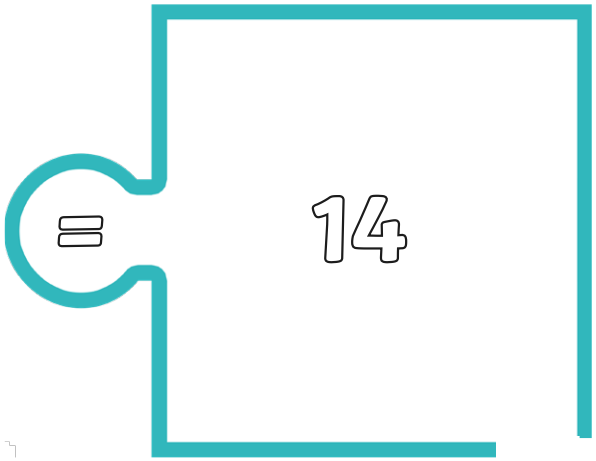












Number Puzzle Activity Cards **Answers**

Question	Answer
59 + 47 =	106
86 + 88 =	174
97 + 47 =	144
63 + 39 =	102
84 + 70 =	154
97 - 46 =	51
75 - 52 =	23
52 - 49 =	3
85 – 31 =	54
94 - 56 =	38
25 × 5 =	125

42 × 8 =	336
34 × 4 =	136
21 × 3 =	63
19 × 7 =	133
69 ÷ 3 =	23
92 ÷ 4 =	23
65 ÷ 5 =	13
48 ÷ 2 =	24
56 ÷ 4 =	14

Mental Calculations

582
+193

Mental Calculations

391
+395

Mental Calculations

297
+184

Mental Calculations

394
+879

Mental Calculations

472
+485

Mental Calculations

686
-482

Mental Calculations

497
-287

Mental Calculations

492
-297

Mental Calculations

983
+458

Mental Calculations

763
-402

Mental Calculations

120
× 4

Mental Calculations

483
× 2

Mental Calculations

150
× 8

Mental Calculations

123
× 3

Mental Calculations

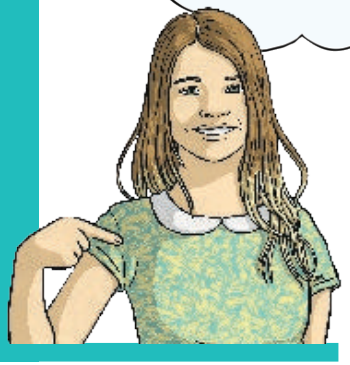
200
× 5

Mental Calculations

148
÷ 4

Mental Calculations

548 ÷ 8



Mental Calculations

129 ÷ 3

Mental Calculations

200 ÷ 5

Mental Calculations

138 ÷ 6

Number Puzzle Activity Cards **Answers**

Question	Answer
582 + 193 =	775
391 + 395 =	786
297 + 184 =	481
394 + 879 =	1273
472 + 485 =	957
686 - 482 =	204
497 - 287 =	210
492 - 297 =	195
983 - 458 =	525
763 - 402 =	361
120 × 4 =	480
483 × 2 =	966
150 × 8 =	1200
123 × 3 =	369
200 × 5 =	1000
148 ÷ 4 =	37
548 ÷ 2 =	274
129 ÷ 3 =	43
200 ÷ 5 =	40
138 ÷ 6 =	23

Mental Calculations

847
+ 280

Mental Calculations

583
+ 587

Mental Calculations

5824
+ 2385

Mental Calculations

3484
+ 4739

Mental Calculations

15.35
+ 23.43

Mental Calculations

582
- 486

Mental Calculations

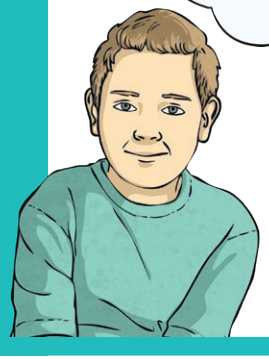
845
- 497

Mental Calculations

54.5
- 33.4

Mental Calculations

48.56
- 27.4



Mental Calculations

998
- 584

Mental Calculations

254
× 4

Mental Calculations

894
× 2

Mental Calculations

230
× 8

Mental Calculations

139
× 3

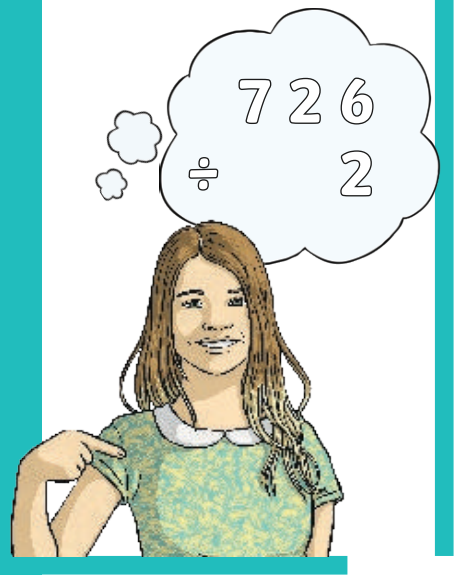
Mental Calculations

250
× 5

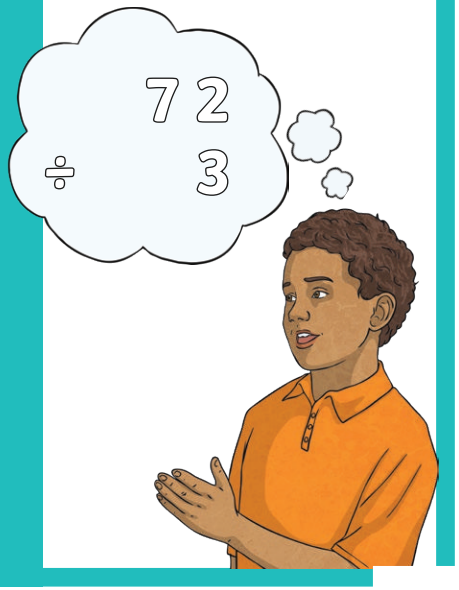
Mental Calculations

96
÷ 4

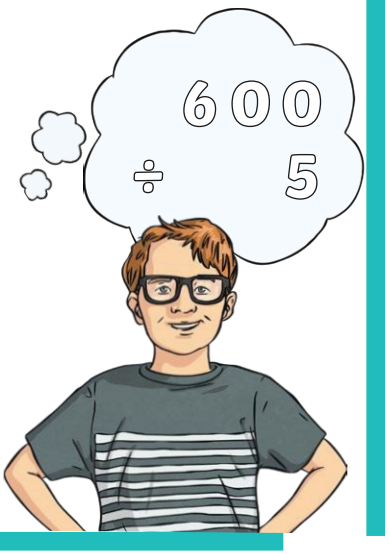
Mental Calculations



Mental Calculations



Mental Calculations



Mental Calculations

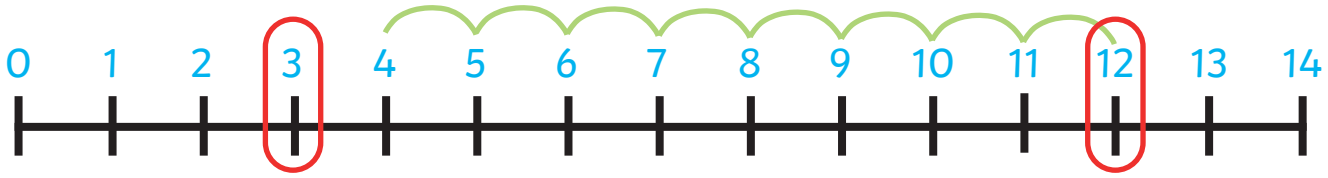
Number Puzzle Activity Cards **Answers**

Question	Answer
847 + 280 =	1127
583 + 587 =	1170
5824 + 2385 =	8209
3484 + 4739 =	8223
15.35 + 23.43 =	38.78
582 - 486 =	96
845 - 497 =	348
54.5 - 33.4 =	21.1
48.56 - 27.4 =	21.16
998 - 584 =	414
254 × 4 =	1016
894 × 2 =	1788
230 × 8 =	1840
139 × 3 =	417
250 × 5 =	1250
96 ÷ 4 =	24
726 ÷ 2 =	363
72 ÷ 3 =	24
600 ÷ 5 =	120
246 ÷ 6 =	41

Number Line
Addition Strategies

3 + 9

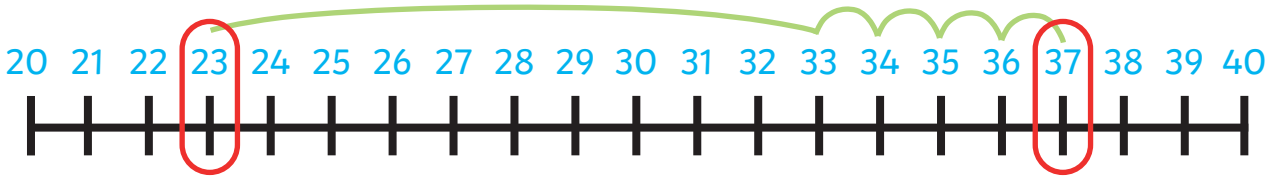
Draw a number line. Start at 3 and hop 9 hops to find the answer.



3 + 9 = 12

23 + 14

Draw a number line. Start at 23, partition 14 into tens and ones.
Do one hop of 10 and then 4 hops of 1 to reach the answer.

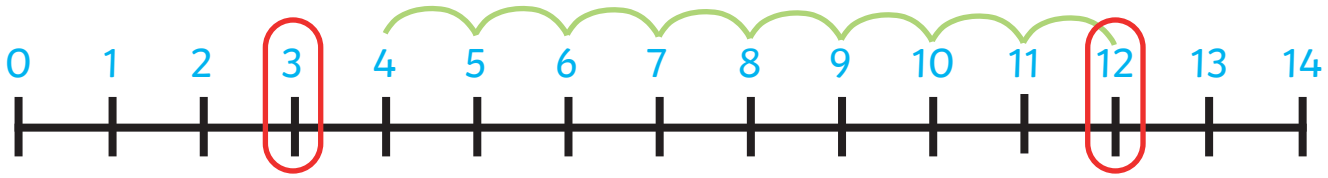


23 + 14 = 37

Number Line
Addition Strategies

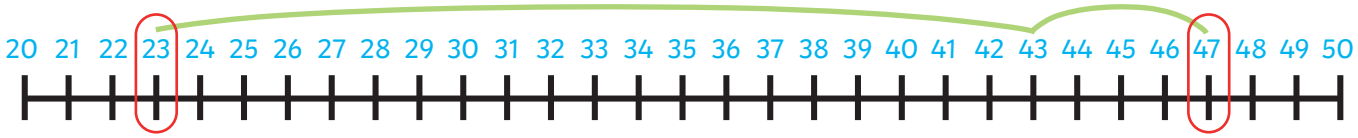
3 + 9

Draw a number line. Start at 3 and hop 9 hops to find the answer.



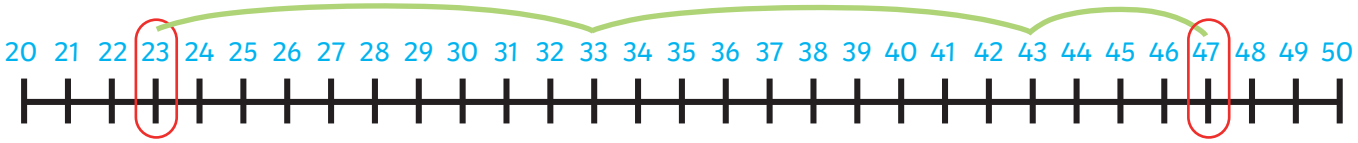
3 + 9 = 12

23 + 14



Draw a number line. Start at 23. Partition 24 into 1 hop of 20 and one hop of 4 to get the answer.

or



Draw a number line. Start at 23. Partition 24 into 2 hops of 10 and 1 hop of 4 to get the answer.

23 + 24 = 47

Partitioning
Addition Strategies

52 + 76

50 + 2
+70 + 6

120 + 8 = **128**

- Write the numbers underneath each other lining up the tens and ones.
- Partition the tens and ones.
- Add the tens.
- Add the ones.
- Combine the totals.

Expanded Columns

Addition Strategies

Write the numbers underneath each other lining up the tens and ones.

54
+68

Add the ones.

12

Add the tens.

+110

Combine your ones and tens.
Line up any hundreds.

122

Column Method

Addition Strategies

1	1 1	1 1
65	296	276
+ 72	+ 46	+ 459
137	342	735

- Write the numbers underneat each other and line up the hundreds, tens and ones.
- Add the units and regroup any tens.
- Add the tens and regroup any hundreds.
- Add the hundreds.

Dividing by 10

Division Strategies

Use place value to work out how to divide in 10s.

674 ÷ 10 = ?

If you divide a number by 10, the digits move one place value to the right.

Hundreds	Tens	Ones	Tenths	Hundrerths
6 ÷	7	4 .		

Hundreds	Tens	Ones	Tenths	Hundrerths
	6	7 .	4	

674 ÷ 10 = 67.4

If you divide a number by 100, the digits will move two place value to the right.

Hundreds	Tens	Ones	Tenths	Hundrerths
6	7	4 .		

Hundreds	Tens	Ones	Tenths	Hundrerths
		6 .	7	4

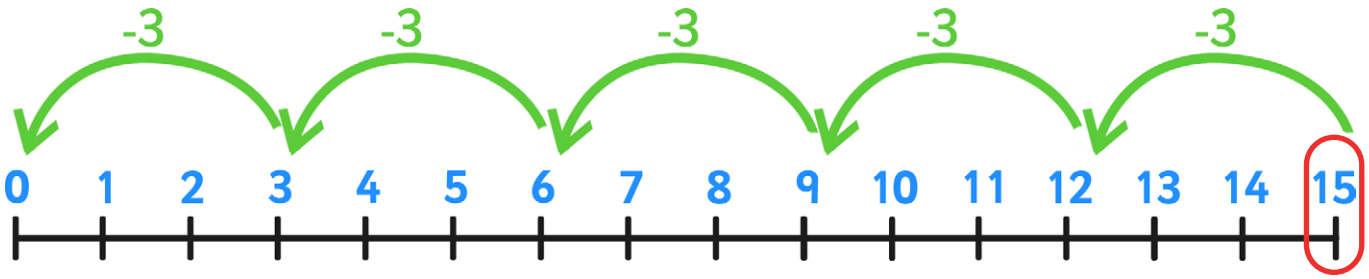
674 ÷ 10 = 6.74

Repeated Subtraction

Division Strategies

You can use repeated subtraction to see how many times a smaller number goes into a bigger one.

15 ÷ 3 = ?



The number of times you can take 3 from 15 is 5.

15 - 3 - 3 - 3 - 3 - 3 = 0

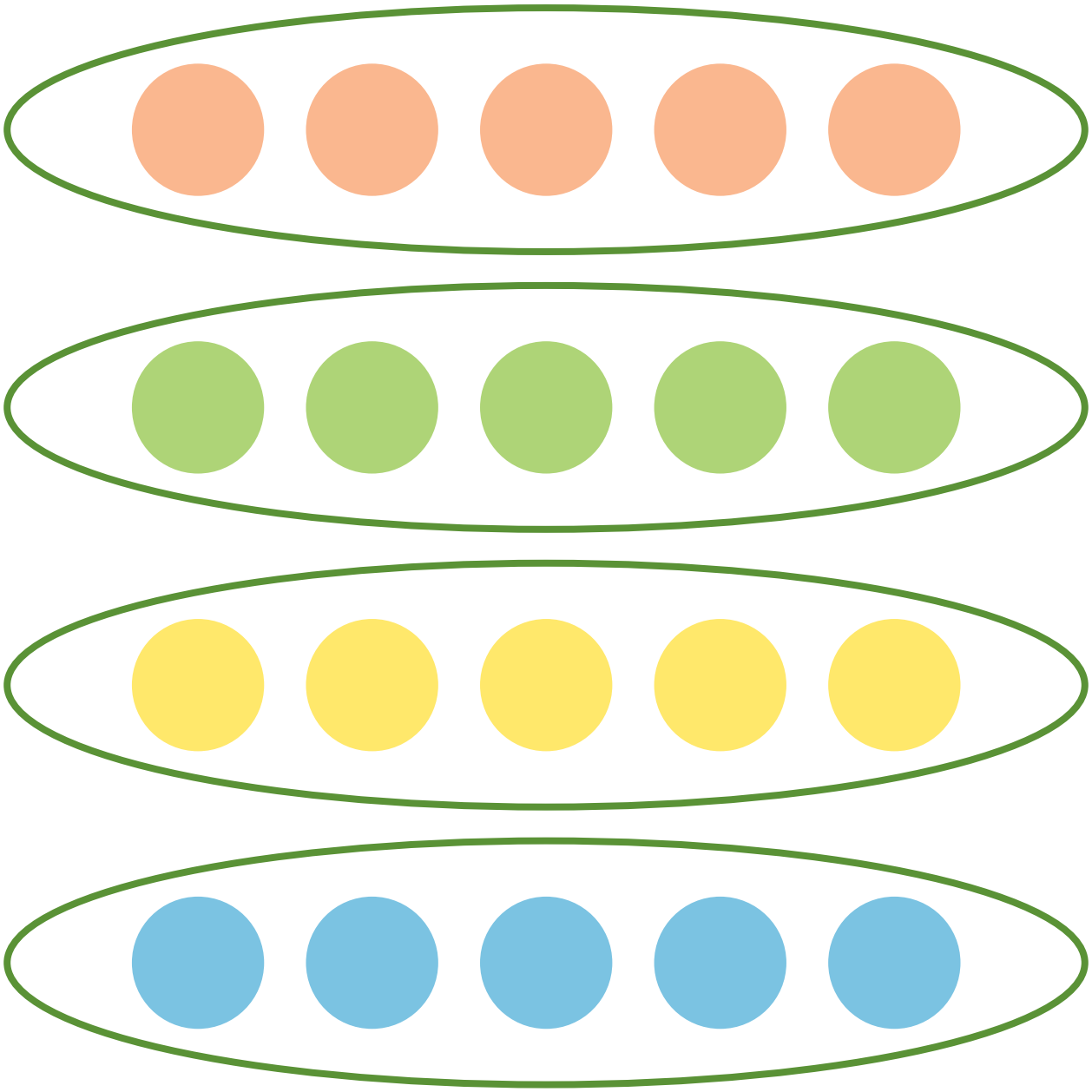
15 ÷ 3 = 5

Grouping

Division Strategies

20 ÷ 5 = 4

20 divided by 5 gives 4 groups.



Grouping using arrays.

Repeated Addition

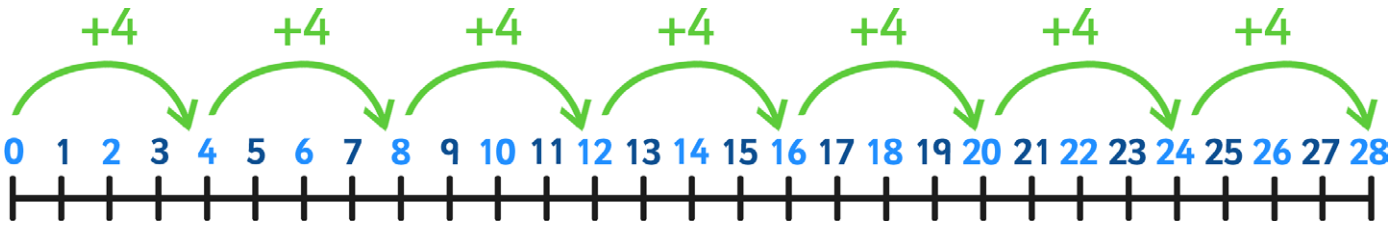
Division Strategies

$$28 \div 4 = 7$$

Draw a number line starting at 0.

Count on in 4s until you reach 28.

Count how many hops it took.



28 divided by 4 is 7.

Repeated Addition
(with remainders)

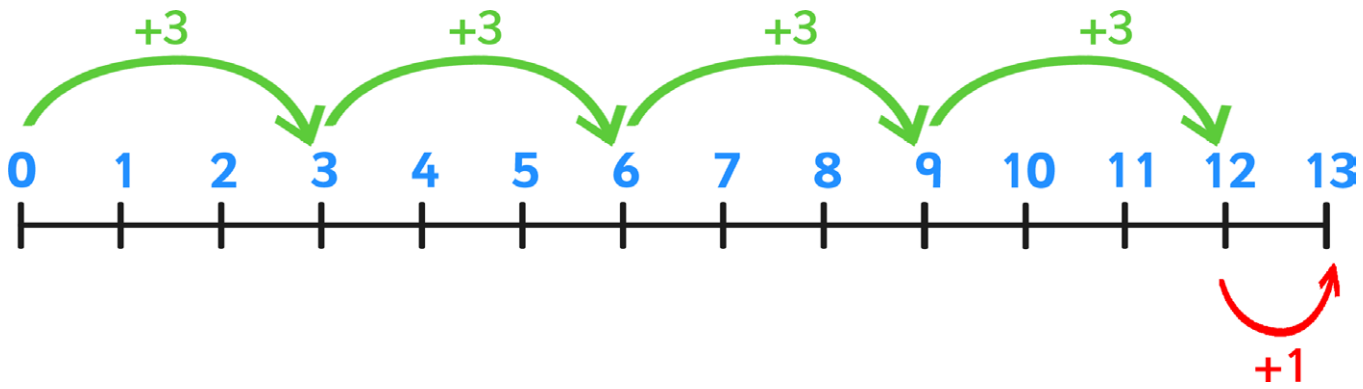
Division Strategies

13 ÷ 3 = 4 r1

Draw a number line starting at 0.

Count on in 3s getting as close to 13 as you can but not going past it.

Count your hops to get the answer.



Any left over is the remainder.

Partitioning

Division Strategies

$$84 \div 4$$

$$80 \div 4 = 20$$

$$4 \div 4 = 1$$

$$21$$

Partition the number into tens and ones.

Divide the tens and ones.

Combine your totals.

$$84 \div 4 = 21$$

Inverse

Division Strategies

Use multiplication tables to work out a division quetion.

$$63 \div 9 = ?$$

You can work this out by knowing ...

$$7 \times 9 = 63$$

So using the inverse, we know that ...

$$63 \div 9 = 7$$

Halving

Division Strategies

Sometimes you can use halving to divide into 2s, 4s and 8s.

$$120 \div 2 = 60$$

We can use this to divide by 4 by halving twice.

$$120 \div 2 = 60$$

then

$$60 \div 2 = 30$$

so

$$120 \div 4 = 30$$

We can use this to divide by 8 by halving 3 times.

$$120 \div 2 = 60$$

then

$$60 \div 2 = 30$$

then

$$30 \div 2 = 15$$

so

$$120 \div 8 = 15$$

Short Division

two digit numbers

Division Strategies

84 ÷ 6 = ?

Partition 84 into tens and ones.

Work out how many 6s divide into 80 so that the answer is a multiple of 10.

In this case, the highest multiple of 10 divisible by 6 is 60.

Partition 84 into 60 and 24 then divide each number by six.

Combine your totals:

$$\begin{array}{r} 10 + 4 = 14 \\ 6 \overline{)\ 60 + 24} \end{array}$$

This mathod can be shortened to:

$$\begin{array}{r} 1\ 4 \\ 6 \overline{)\ 8^{2}4} \end{array}$$

Short Division

three digit numbers

Division Strategies

434 ÷ 7 = ?

Work out how many 7s go into 430. (The answer must be a multuple of 10.)

In this case 7 goes into 430 sixty times leaving a remainder of 10.

Add this 10 to the remaining 4 from the original 343 to make 14.

Divide 14 by 7 to get 2.

Combine 60 and 2 to get the answer.

$$7 \overline{)\ 430 + 4} \quad = \quad \begin{array}{r} 60 + 2 \\ 7 \overline{)\ 420 + 14} \end{array}$$

This mathod can be shortened to:

$$\begin{array}{r} 6\ 2 \\ 7 \overline{)\ 4\ 3^{1}4} \end{array}$$

Long Division

Division Strategies

499 ÷ 15 = ?

$$
\begin{array}{r}
26\ 3/5 \\
15\overline{)399} \\
\underline{300} \\
99 \\
\underline{90} \\
r9
\end{array}
$$

$\frac{9}{15} = \frac{3}{5}$

First partition the number.

Divide 300 by 15. Write this on the answer line above the correct units.

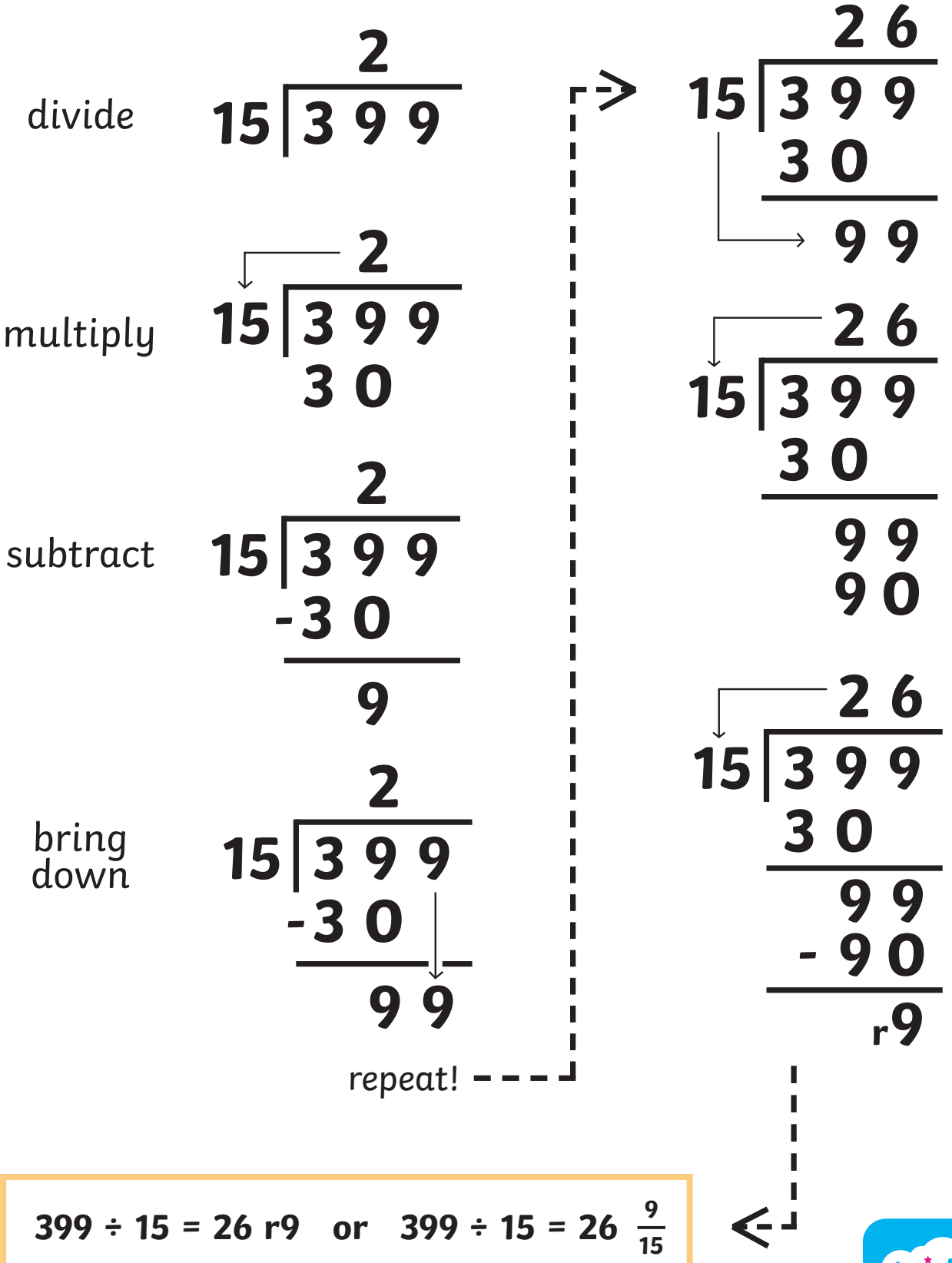
Divide 99 by 15.

Write any reminders as fraction as simplified as possible.

Long Division

Division Strategies

499 ÷ 15 = ?

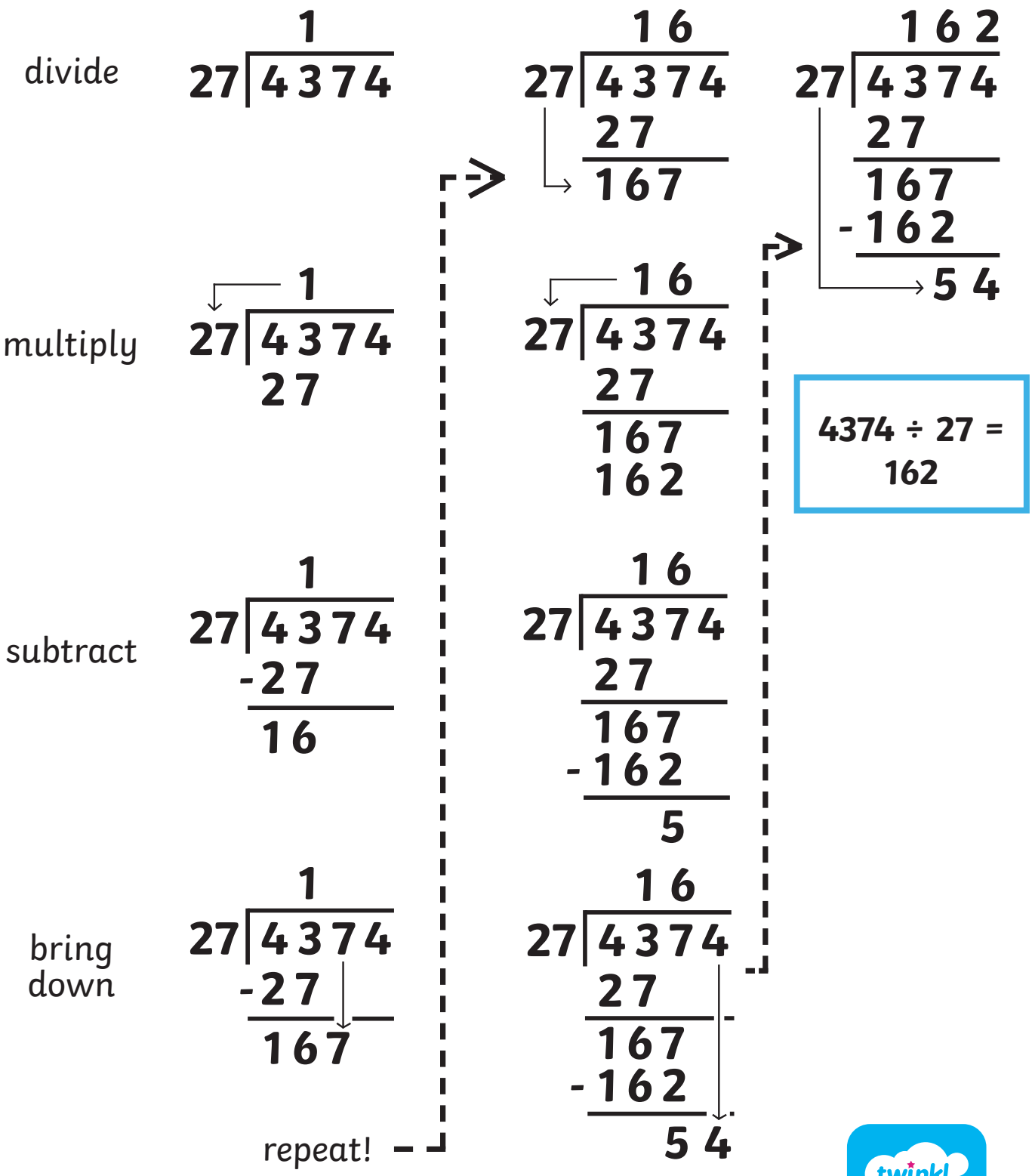


399 ÷ 15 = 26 r9 or **399 ÷ 15 = 26 $\frac{9}{15}$**

Long Division

Division Strategies

4374 ÷ 27 = ?

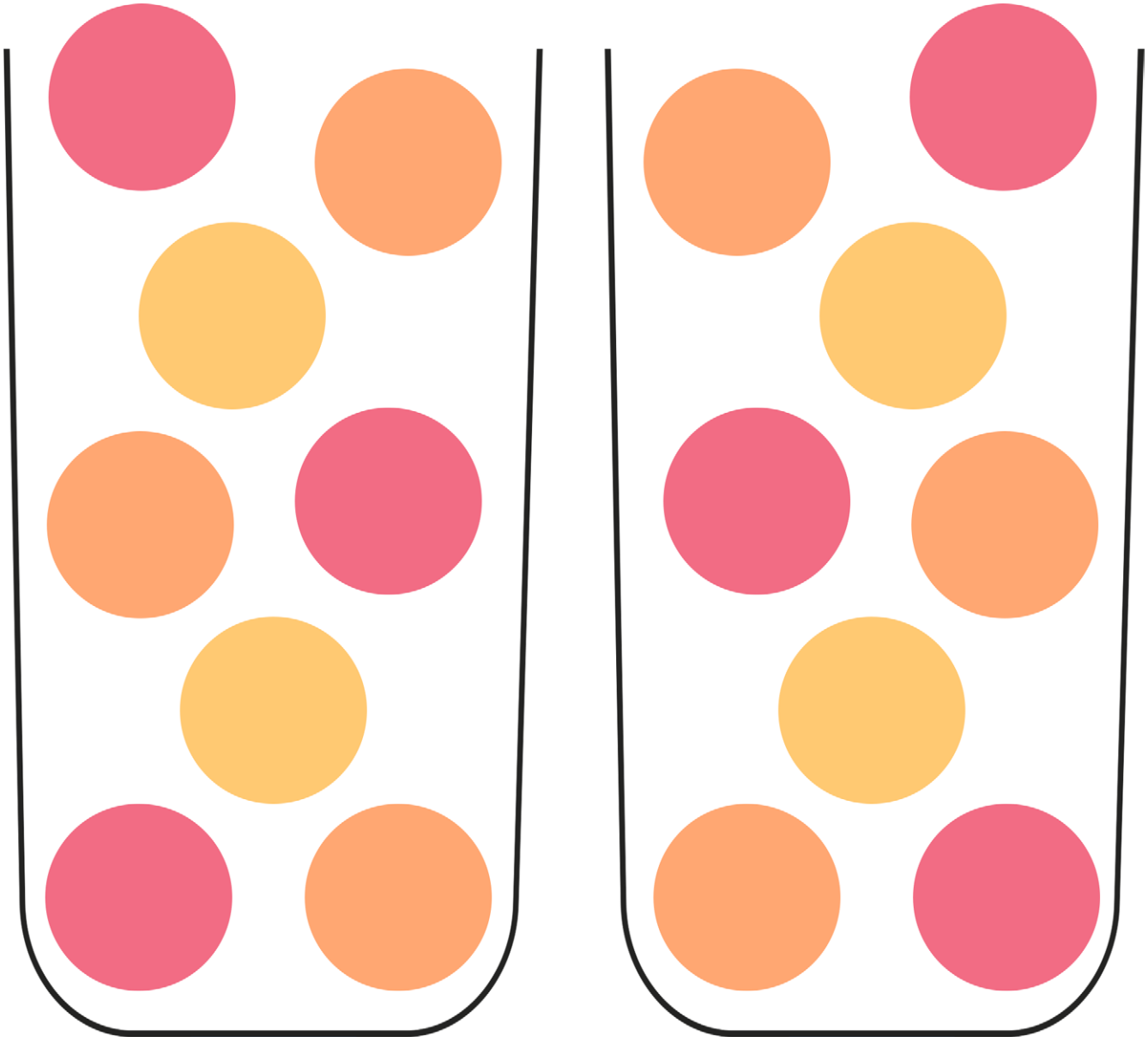


Sharing

Division Strategies

$$16 \div 2 = 8$$

16 shared equally between 2 gives you 8.



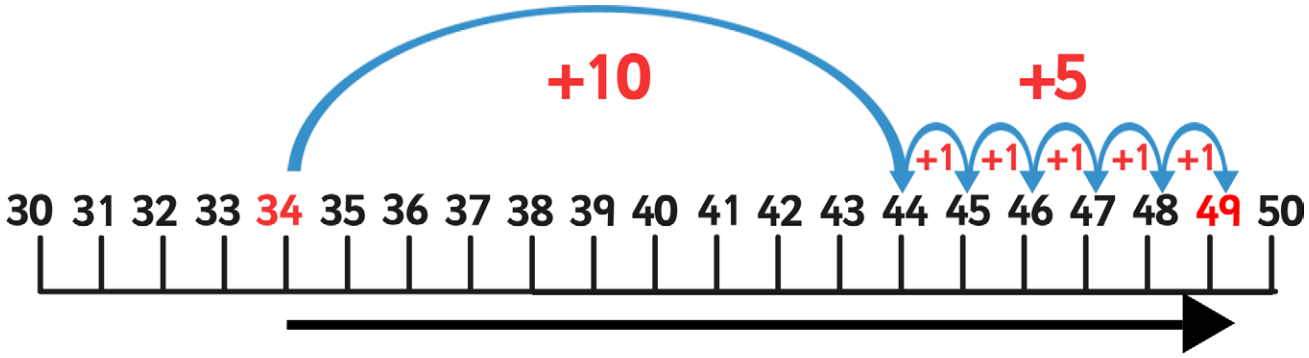
Counting On

Mental Maths Strategies

For adding and subtracting numbers close to each other.
This strategy works well with a number line or square.

You can even do it mentally!

34 + 15 = ?



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

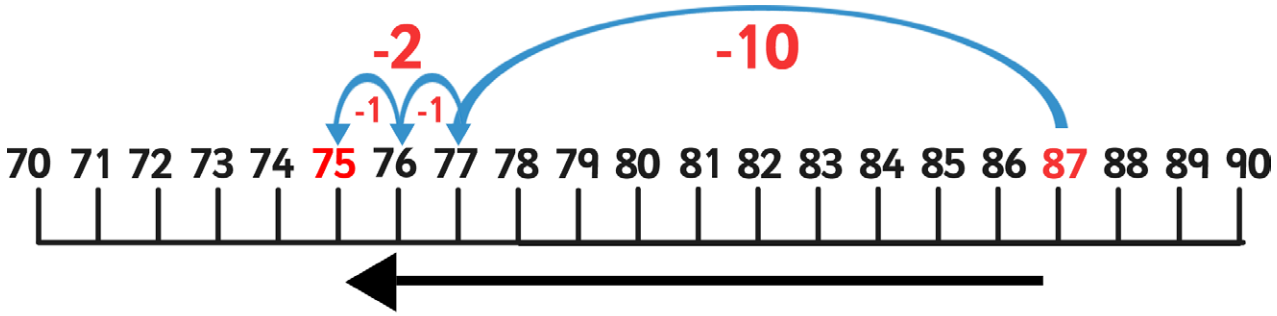
Counting Back

Mental Maths Strategies

For subtracting smaller numbers.
This strategy works well with a number line or square.

You can even do it mentally!

87 - 12 = ?



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

Near Doubles

Mental Maths Strategies

For adding similar numbers.

Double one of the numbers and adjust by adding or subtracting the difference

26 + 25 =

I know double 25 is 50.

26 + 25 =
1 more than double is 25 = 51

Near Halves

Mental Maths Strategies

For subtracting when the number is a near half.

25 - 12 =

I know half of 24 is 12.

25 - 12 = 13

25 is 1 more than 24, so answer is 1 more than 12 = 13

Using Pairs to Ten

Mental Maths Strategies

For adding where numbers add to 10, or end with a 0.

23 + 67 =

I know 3 + 7 = 10

23 + 67 = 20 + 60 = 90
160 - 37 =

I know 10 - 7 = 3

160 - 37 = 160 - 30 - 7 = 130 - 7 = 123

Part, Part, Whole

Mental Maths Strategies

Use known facts to add and subtract.

17 - 8 =

I know 8 + 9 = 17

so

17 - 8 = 9

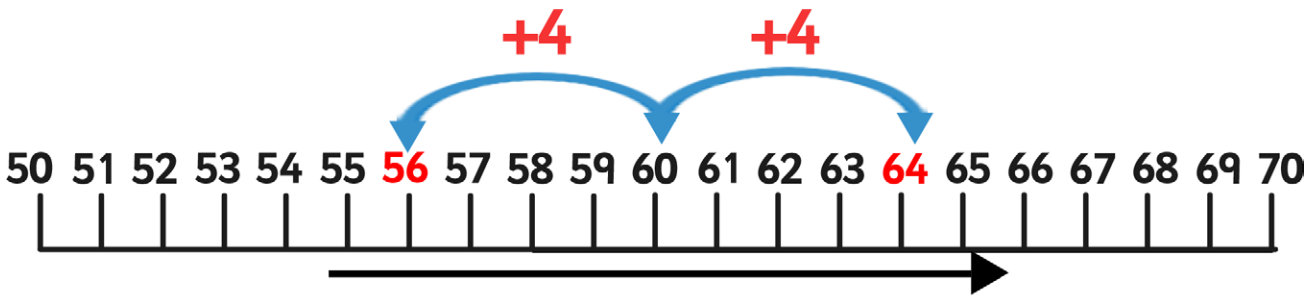
Make Ten and Then Some

Mental Maths Strategies

Add and subtract past tens.

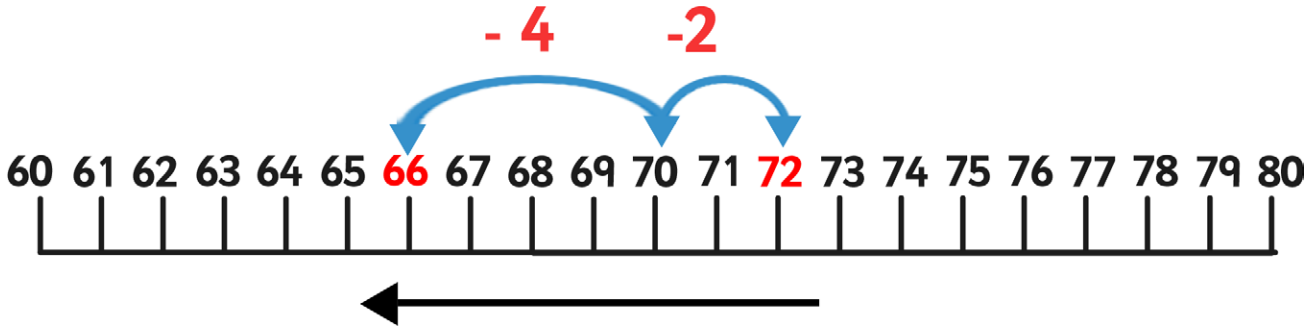
56 + 8 =

56 + 4 = 60 so 65 + 4 + 4 = 64



72 – 6 =

72 – 2 = 70 so 72 – 2 – 4 = 66



Front-end Adding

Mental Maths Strategies

For addition.

$$69 + 37 =$$

$$60 + 30 = 90$$

$$9 + 7 = 16$$

$$90 + 16 = 106$$

$$\begin{array}{r} 90 \\ +\ 16 \\ \hline 106 \end{array}$$

Compensation for 8 or 9

Mental Maths Strategies

For adding or subtracting where a number has 8 or 9 in ones.

Add 9 - add 10 and subtract 1
Subtract 8 - subtract 10 and add 2

Use strategy for:

Add 39 - add 40 and subtract 1
Subtract 79 - subtract 80 and add 1

34 + 9 =

34 + 10 = 44

44 - 1 = 43

or

83 - 38 =

83 - 40 = 43

43 + 2 = 45

Use Multiples of 25

Mental Maths Strategies

For adding or subtracting when numbers are near multiple of 25.

Add or subtract and compensate.

76 + 48 =

75 + 50 = 125

125 + 1 - 2 = 124

or

174 - 128 =

175 - 125 =

50 - 1 - 3 = 46

Common Zeros

Mental Maths Strategies

For adding or subtracting when numbers with the same number of zeros.

60 + 130 =

6 tens + 13 tens = 19 tens

60 + 130 = 190

or

1500 - 200

15 hundreds - 2 hundreds = 13 hundreds

1500 - 200 = 1300

Trailing Zeros

Mental Maths Strategies

For multiplying numbers ending in zero.

40 x 8 =

4 tens x 8 = 32 tens

40 x 8 = 320

or

70 x 50 =

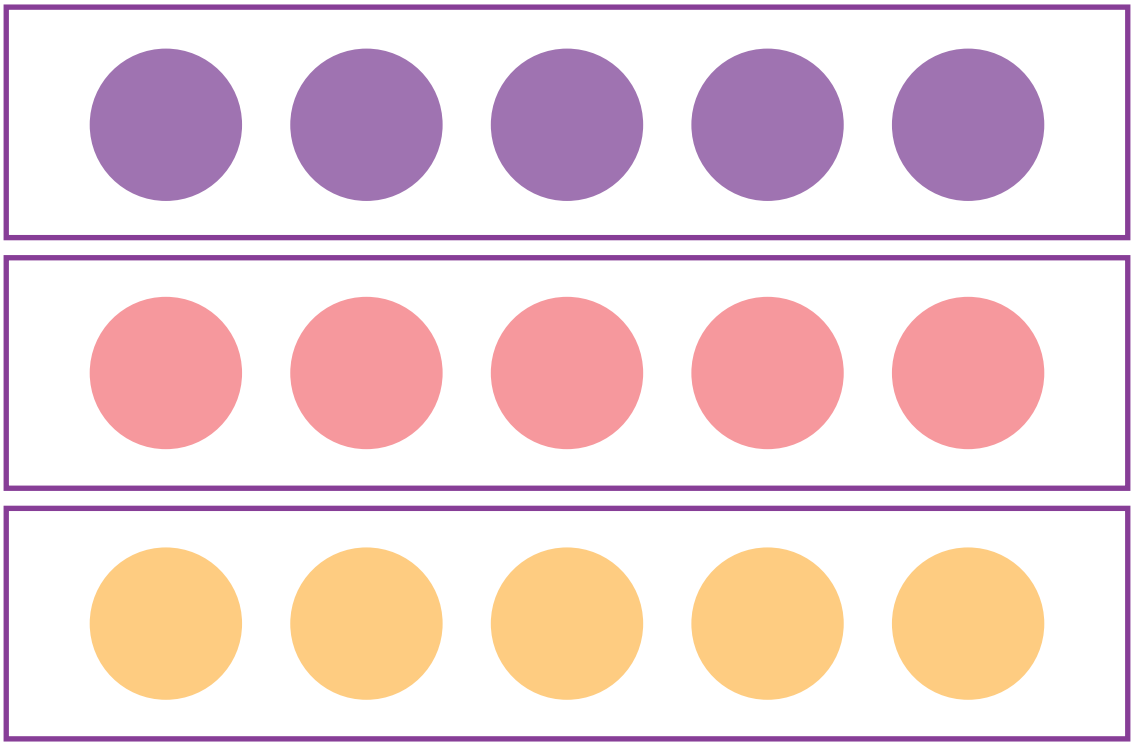
7 tens x 6 tens = 42 hundreds

70 x 60 = 4200

Array

Multiplication Strategies

Rows and columns with an equal amount in each.

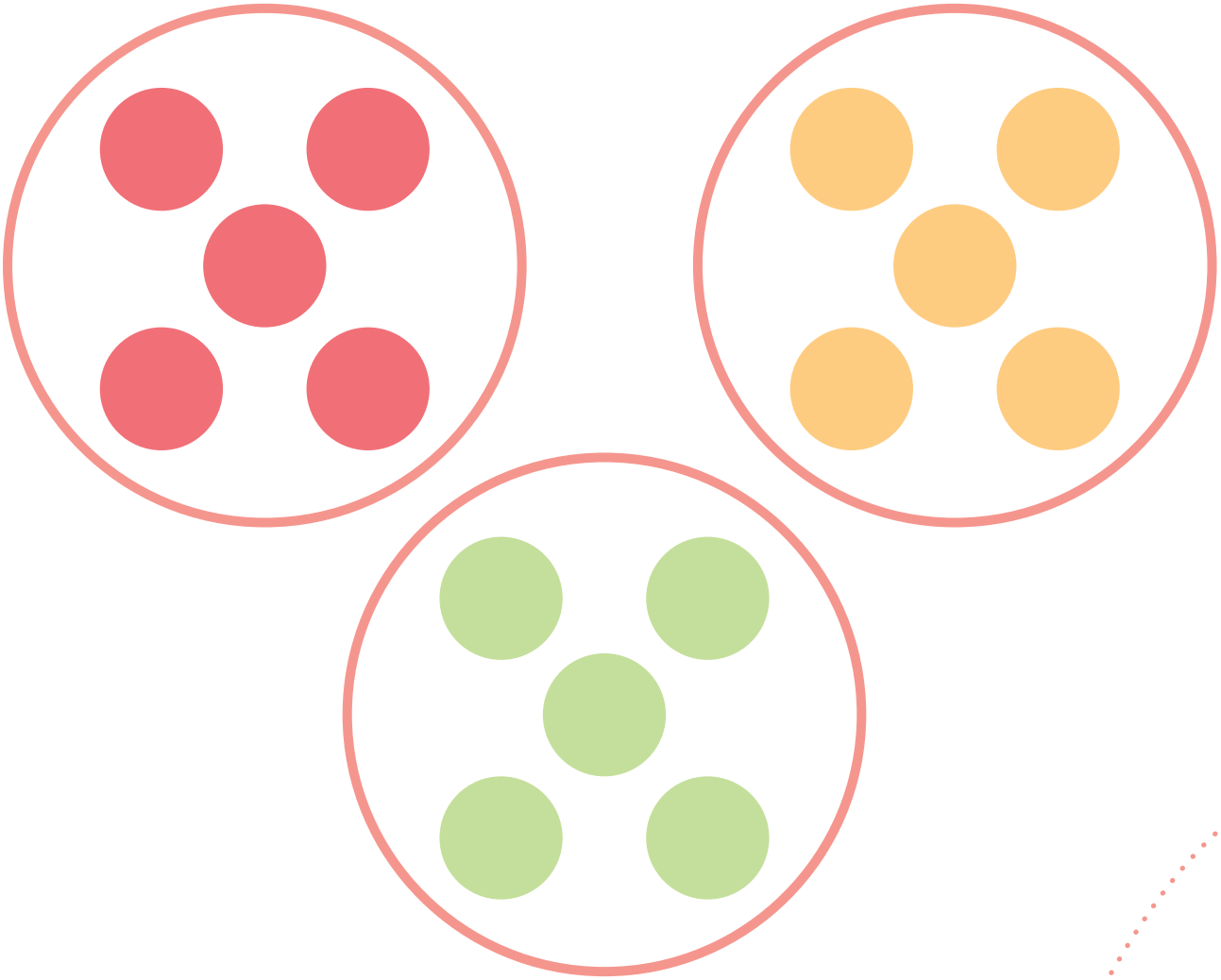


$3 \times 5 = 15$

Equal Groups

Multiplication Strategies

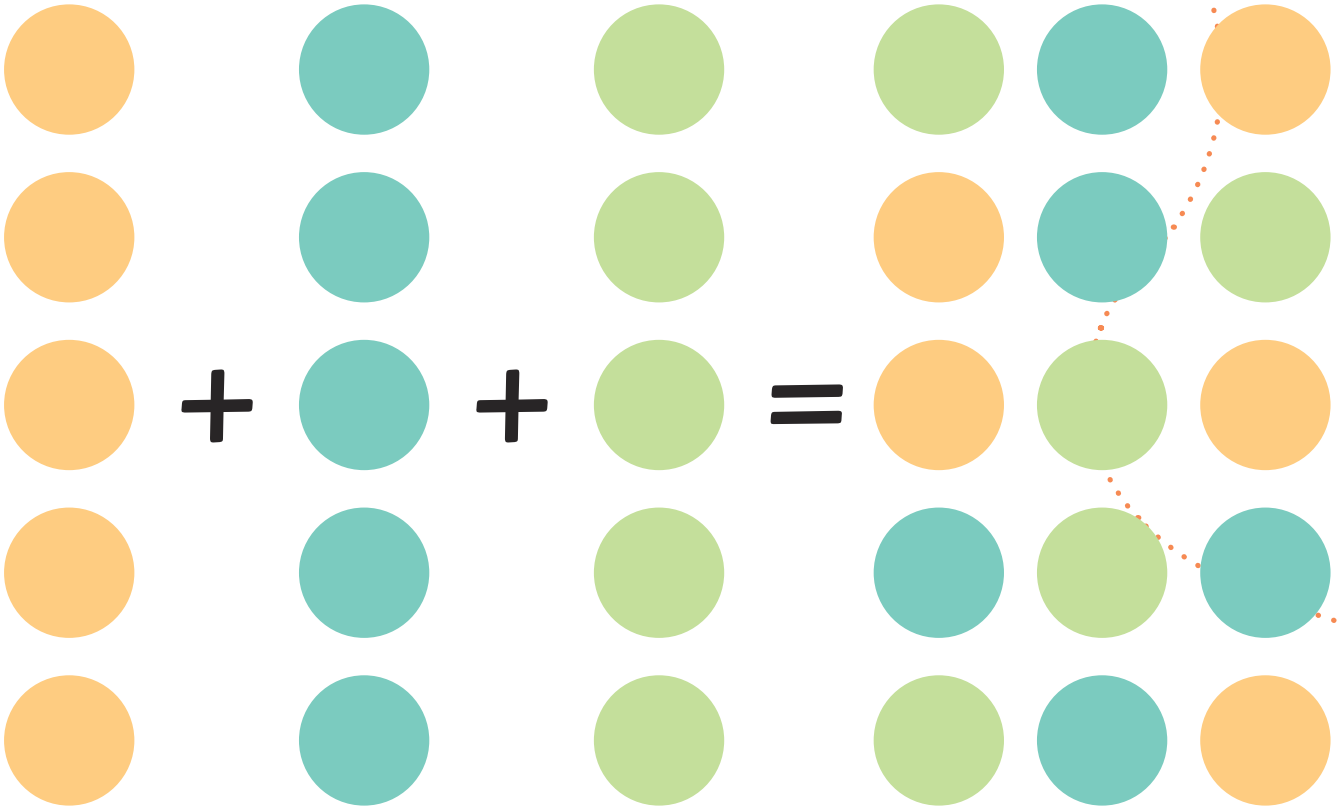
Use the same number of ones in each group.



$3 \times 5 = 15$

Repeated Addition

Multiplication Strategies

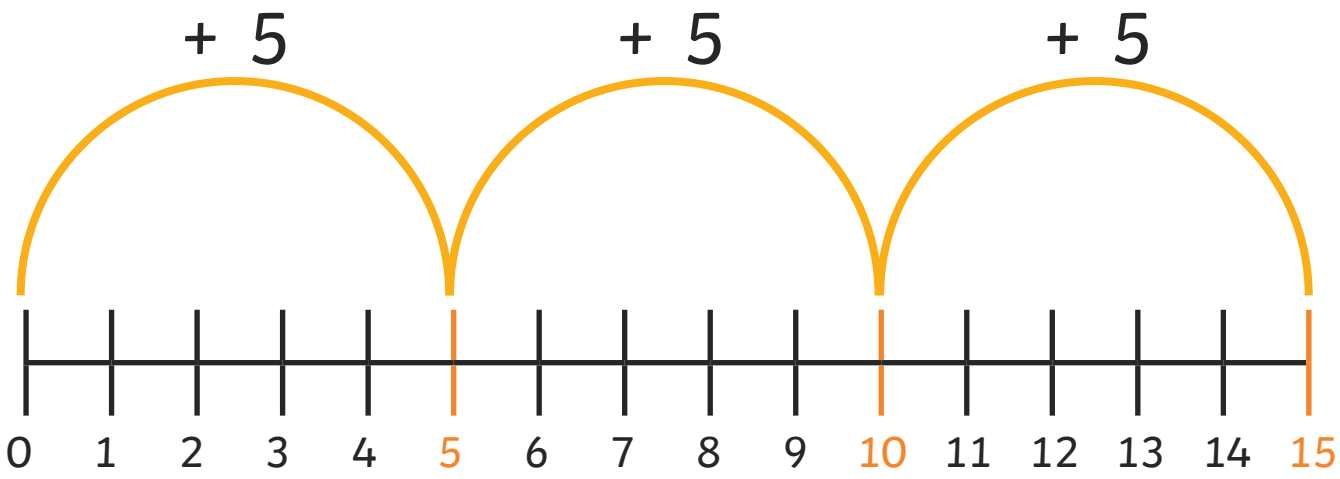


$3 \times 5 = 15$

Number Line

Multiplication Strategies

Starting from zero, hop 5 at a time.
Where do you land?



1 hop of 5 = 5

2 hops of 5 = 10

3 hops of 5 = 15

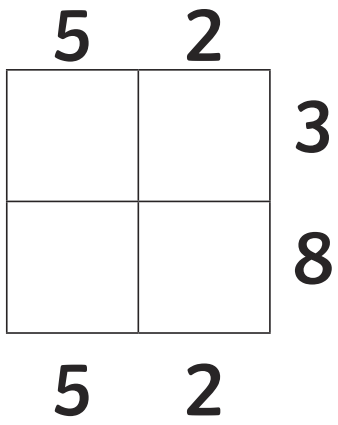
3 × 5 = 15

Latice/Italian

Multiplication Strategies

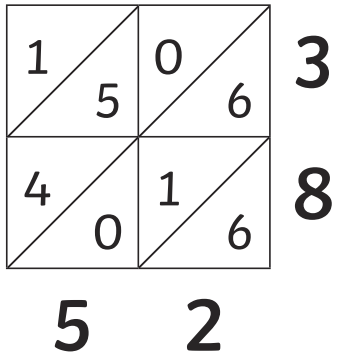
Draw a grid to match the numbers.

Write the partitioned number on top and to the right.



Add the diagonals in turn.

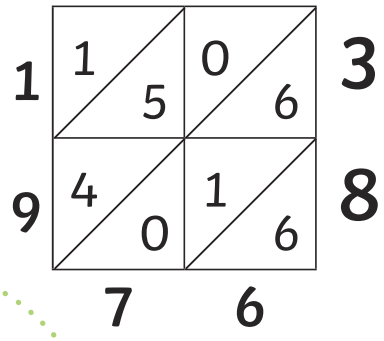
Carry any “tens” as required.



Draw diagonals.

Multiply the numerals.

Write the answers in the relevant box, writing the digits either side of the diagonal.



52 × 38 = 1976

Partitioning

Multiplication Strategies

53 × 38

Multiply each partition together and add the products.

$$
\begin{array}{rcrcr}
50 & \times & 30 & = & 1500 \\
3 & \times & 30 & = & 90 \\
50 & \times & 8 & = & 400 \\
3 & \times & 8 & = & 24 \\
\hline
 & & & & 2014
\end{array}
$$

53 × 38 = 2014

Grid Method

Multiplication Strategies

×	50	2
30		
8		

Draw a Grid.

Write the partitioned numbers at the top left of the grid.

×	50	2
30	1500	60
8	400	16

Multiply the partitioned number.

$$\begin{array}{r} 1500 \\ +\ 400 \\ +\ 60 \\ +\ 16 \\ \hline 1976 \end{array}$$

Add the products.

52 × 38 = 1976

Column Method

Multiplication Strategies

$$\begin{array}{r} 52 \\ \times\ 38 \end{array}$$

Write the numbers above each other in the columns.

$$\begin{array}{r} 52 \\ \times\ 38 \\ \hline 416 \end{array}$$

Multiply 52 × 8

$$\begin{array}{r} 52 \\ \times\ 38 \\ \hline 416 \\ 1560 \end{array}$$

Multiply 52 × 30

$$\begin{array}{r} 416 \\ +\ 1560 \\ \hline 1976 \end{array}$$

Add the products.

52 × 38 = 1976

Expanded Column Method

Multiplication Strategies

	42	
×	6	
	12	(2 × 6)
	240	(40 × 6)
	252	

1. Line up the ones and the tens.
2. Multiply the ones.
3. Multiply tens.
4. Add the totals together.

42 × 6 = 252

Column Method

Multiplication Strategies

3-digit × 2-digit carrying not shown

```
  368
×  24
```

Write the numbers above each other in the columns.

```
  368
×  24
 1472
```

Multiply 368 × 4

```
  368
×  24
 1472
 7360
```

Multiply 368 × 20

```
  1472
+ 7360
  8832
```

Add the products.

368 × 24 = 8832

Column Method

Multiplication Strategies

4-digit × 2-digit carrying not shown

```
  5368
×   24
```

Write the numbers above each other in the columns.

```
  5368
×   24
------
  1472
```

Multiply 5368 × 4

```
  5368
×   24
------
 21472
107360
```

Multiply 5368 × 20

```
 21472
+107360
------
128832
```

Add the products.

5368 × 24 = 128,832

Column Method

Multiplication Strategies

5-digit × 2-digit carrying not shown

```
  25368
×    24
```

Write the numbers above each other in the columns.

```
  25368
×    24
 101472
```

Multiply 25 368 × 4

```
  25368
×    24
 101472
 507360
```

Multiply 25 368 × 20

```
  101472
+ 507360
  608832
```

Add the products.

25 386 × 24 = 608 832

Column Method

Multiplication Strategies

6-digit × 2-digit carrying not shown

```
  125368
×     24
```

Write the numbers above each other in the columns.

```
  125368
×     24
 501472
```

Multiply 125 368 × 4

```
  125368
×     24
 501472
2507360
```

Multiply 125 368 × 20

```
  501472
+ 2507360
 3008832
```

Add the products.

125 386 × 24 = 608 832

Multiplying Decimals by 10

Multiplication Strategies

Use place value to work out how to multiply by 10.

6.74 × 10 = ?

If you multipy a number by 10, the digits move one place value to the left.

Hundreds	Tens	Ones	Tenths	Hundredths
		6 .	7	4

Hundreds	Tens	Ones	Tenths	Hundredths
	6	7 .	4	

6.74 × 10 = 67.4

Use place value to work out how to multiply by 100.

6.74 × 100 = ?

Hundreds	Tens	Ones	Tenths	Hundredths
		6 .	7	4

Hundreds	Tens	Ones	Tenths	Hundredths
6	7	4 .	0	0

If you multiply a number by 100, the digits move two places to the left.

6.74 × 100 = 674

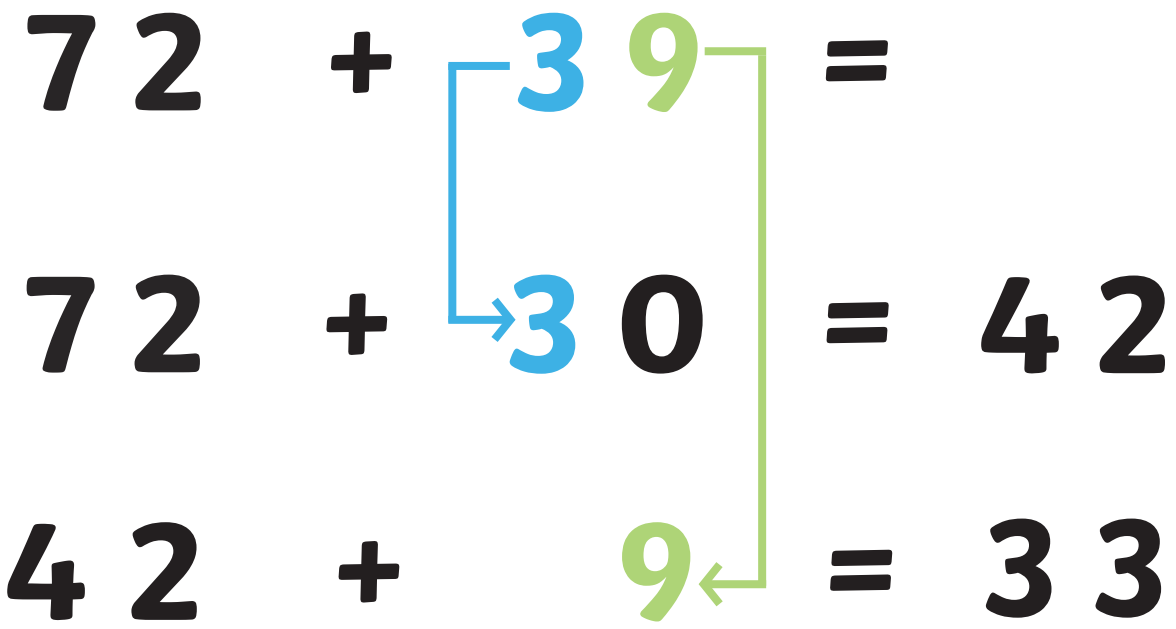
Partitioning

Subtraction Strategies

Always start with the biggest number.

Partition the smaller number and take away the tens.

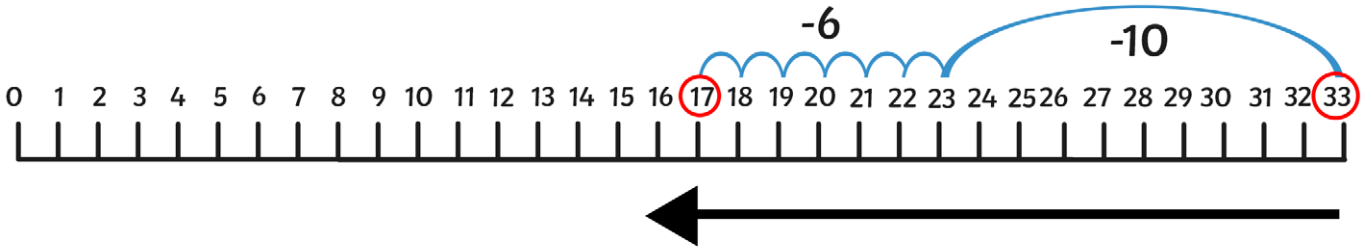
Take away the ones from this new number.



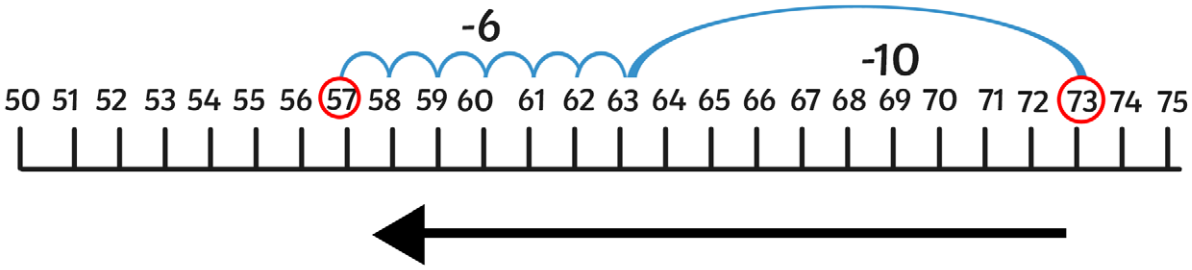
Counting Back

Subtraction Strategies

33 - 16 =



73 - 16 =

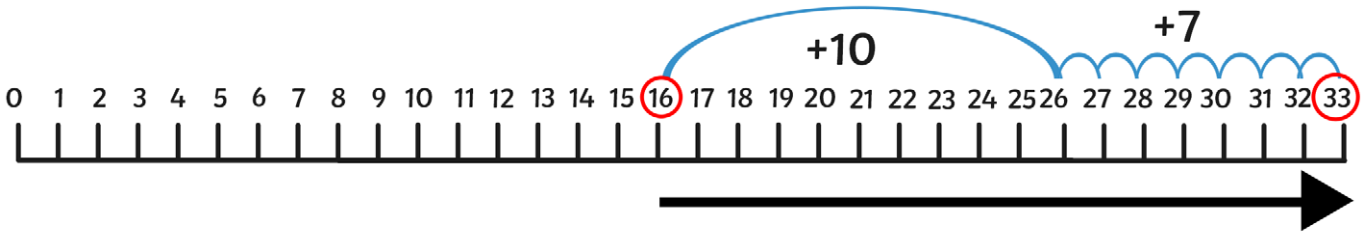


Counting On

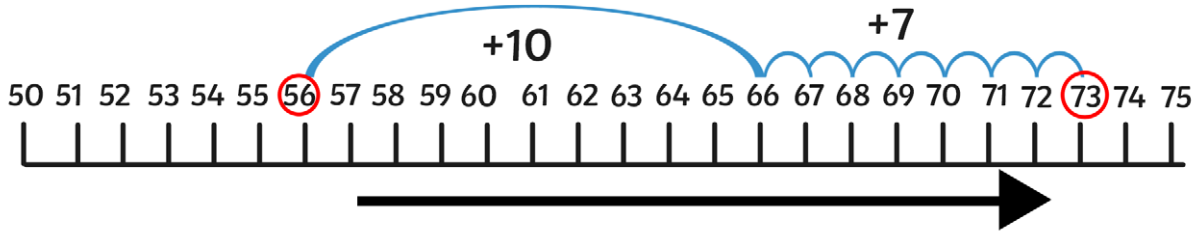
Subtraction Strategies

Start at the lower number and count on the higher number. The number of steps you make to the higher number is the answer!

33 - 16 =



73 - 56 =



Column Method

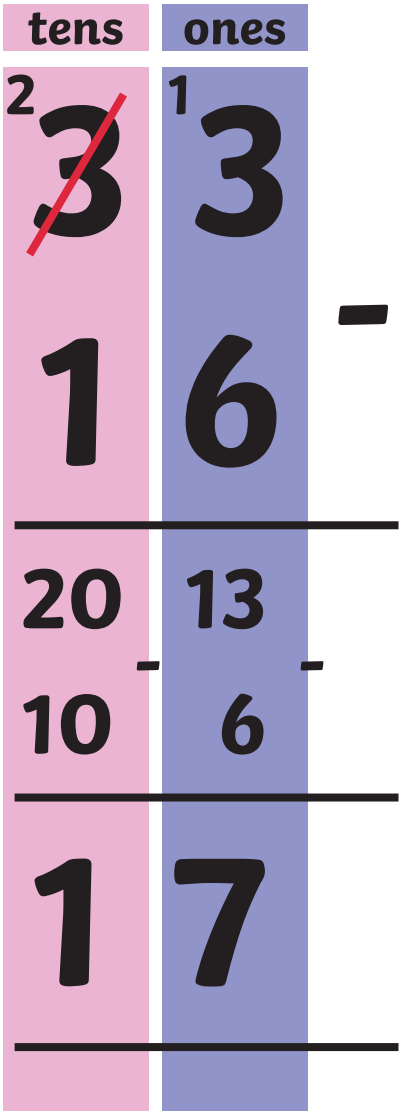
Subtraction Strategies

Line up the tens and ones with the big number on top.

Subtract the ones.

If the bottom number in the ones column is bigger than the top, then adjust from the tens before you subtract.

Subtract the tens.



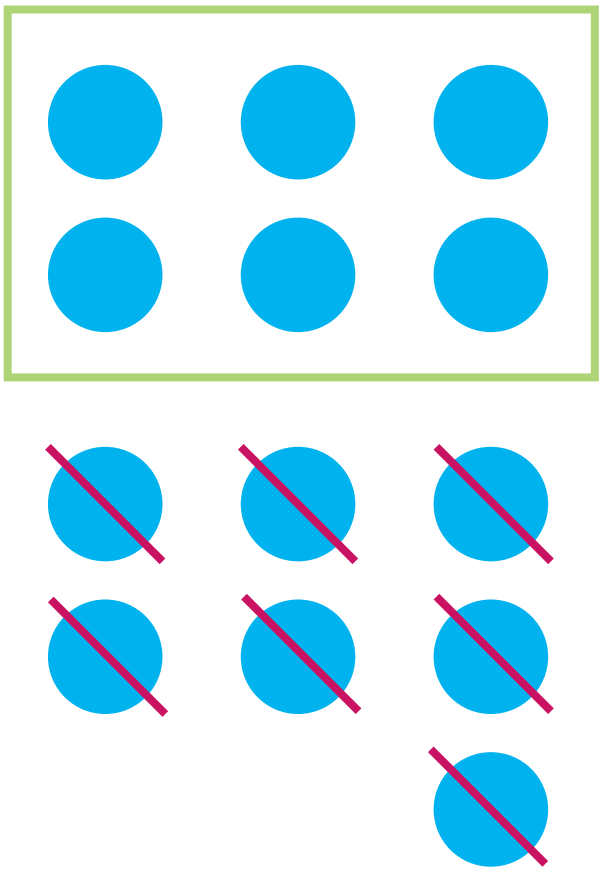
Difference and Take Away

Subtraction Strategies

Subtraction means:

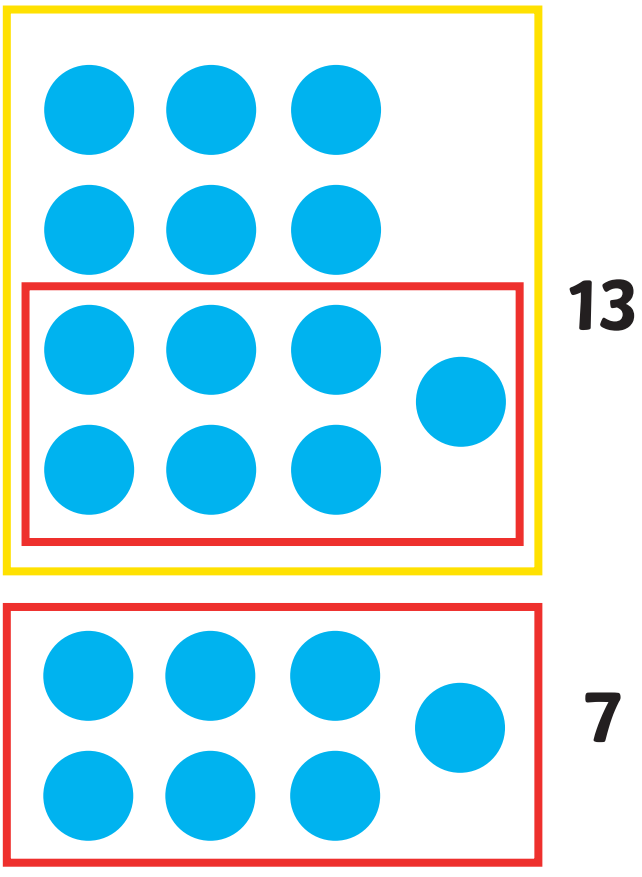
take away

13 - 7



difference

13 - 7



Language of Subtraction

Subtraction Strategies

Subtract

Minus

Less

Decrease

Take Away

Fewer

Leave

Difference

Column Method

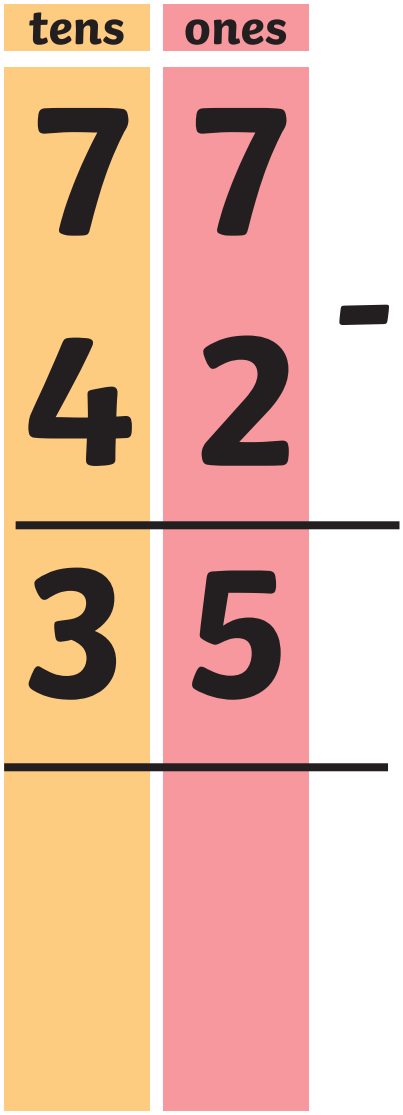
Subtraction Strategies

Line up the tens and ones with the big number on top.

Subtract the ones column.

Subtract the tens column.

Answer underneath.



Column Method

Subtraction Strategies

Line up the hundreds, tens and ones with the big number on top.

Subtract the ones in column.

Subtract the tens column.

Subtract the hundreds column.

Answer underneath.