

The background is a solid teal color with several light blue, semi-transparent abstract shapes scattered across it. These shapes include rectangles, circles, and irregular polygons, some of which are partially cut off by the edges of the frame.

# Additi Multiplic

ion, Subtra  
cation and

# raction, Division

# Common Multiples

n Factors, C  
and prime

# Common Numbers



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The background is a solid teal color with large, faint, semi-transparent letters spelling '100%' in a light blue shade. The word 'Formal' is written in a large, white, rounded font with a black outline, centered horizontally across the middle of the image.

Formal

Written M

# Methods

# Multi-Sto

Step Word P





Order



of Opero

The background is a vibrant blue with several light blue, semi-transparent geometric shapes scattered across it. These shapes include rectangles, squares, and circles, some of which are tilted or rotated. The word "ations" is written in a large, white, rounded, sans-serif font with a thick black outline, positioned horizontally across the center of the image.

ations

# Adding Six-Digit Numbers Using Column Method

1

	2	4	9	4	9	5
+	4	8	9	2	9	4
						9

Place the numbers one on top of the other, lining up the digits in the right columns. Start with the lowest value place value column. In this calculation, add the ones digits:  $5 + 4 = 9$ .

2

	2	4	9	4	9	5
+	4	8	9	2	9	4
					8	9

1

Add the tens:  $9 + 9 = 18$ . Regroup the 10 tens for 1 hundred and write it underneath the hundreds column.

3

	2	4	9	4	9	5
+	4	8	9	2	9	4
				7	8	9

1

Add the hundreds, remembering the extra one underneath:  $4 + 2 + 1 = 7$ .

4

	2	4	9	4	9	5
+	4	8	9	2	9	4
			8	7	8	9

1 1

Add the thousands:  $9 + 9 = 18$ . Regroup the 10 thousands for 1 ten thousand, and write it underneath the ten thousands column.

5

	2	4	9	4	9	5
+	4	8	9	2	9	4
		3	8	7	8	9

1 1 1

Add the ten thousands, remembering the extra one underneath:  $4 + 8 + 1 = 13$ . Regroup the 10 ten thousands for 1 hundred thousand, and write it underneath the hundred thousands column.

6

	2	4	9	4	9	5
+	4	8	9	2	9	4
	7	3	8	7	8	9

1 1 1

Add the hundred thousands, remembering the extra one underneath:  $2 + 4 + 1 = 7$ . Don't forget to check your answer!

# 1

	HTh	TTh	Th	H	T	O
	2	4	9	4	9	5
+	4	8	9	2	9	4

Let's look at the number calculation:

$$249\,495 + 489\,294$$

Place the numbers one on top of the other, lining up the hundred thousands, ten thousands, thousands, hundreds, tens and ones.

# 2

	HTh	TTh	Th	H	T	O
	2	4	9	4	9	5
+	4	8	9	2	9	4
						9

Start with the lowest value place value column.

Add the ones and write the total in the answer section.

$$5 + 4 = 9 \text{ ones}$$

# 3

	HTh	TTh	Th	H	T	O
	2	4	9	4	9	5
+	4	8	9	2	9	4
					8	9
				1		

Add the tens.

$$9 + 9 \text{ tens} = 18 \text{ tens}$$

$$= 10 + 8 \text{ tens}$$

Regroup 10 tens for 1 hundred and regroup into the hundreds column, underneath the answer section.

Write 8 tens in the answer section.

## 4

	HTh	TTh	Th	H	T	O
	2	4	9	4	9	5
+	4	8	9	2	9	4
				7	8	9
				1		

Add the hundreds, remembering the one hundred that was regrouped.

$$4 + 2 + 1 = 7 \text{ tens}$$

Write 7 tens in the answer section.

## 5

	HTh	TTh	Th	H	T	O
	2	4	9	4	9	5
+	4	8	9	2	9	4
			8	7	8	9
			1	1		

Add the thousands.

$$9 + 9 = 18 \text{ thousands} \\ = 10 + 8 \text{ thousands}$$

Regroup 10 thousands for 1 ten thousand and regroup into the ten thousands column, underneath the answer section.

Write 8 thousands in the answer section.

# 6

	HTh	TTh	Th	H	T	O
	2	4	9	4	9	5
+	4	8	9	2	9	4
		3	8	7	8	9
		1	1	1		

Add the ten thousands, remembering the one ten thousand that was regrouped.

$$4 + 8 + 1 = 13 \text{ ten thousands} = 10 \text{ ten thousands} + 3 \text{ ten thousands}$$

Exchange 10 ten thousands for 1 hundred thousand and regroup into the hundred thousands column, underneath the answer section.

Write 3 ten thousands in the answer section.

# 7

	HTh	TTh	Th	H	T	O
	2	4	9	4	9	5
+	4	8	9	2	9	4
	7	3	8	7	8	9
		1	1	1		

Add the hundred thousands, remembering the one hundred thousand that was regrouped.

$$2 + 4 + 1 = 7 \text{ hundred thousands}$$

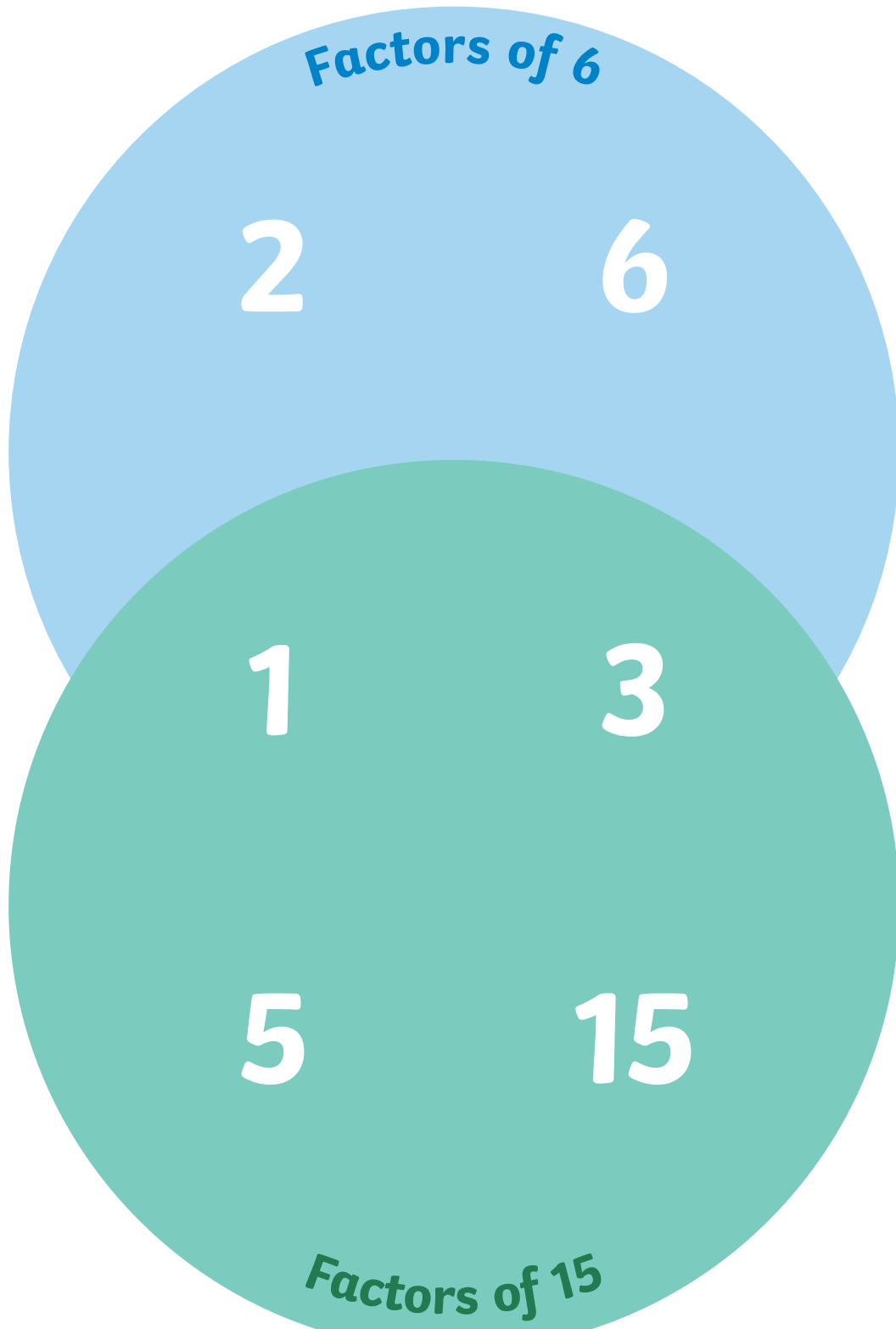
Write 7 in the hundred thousands part of the answer section.

Always recheck your method of calculation.

# Common Factors

A common factor is a factor of 2 or more numbers.

E.g. 3 is a common factor of 6 and 15.

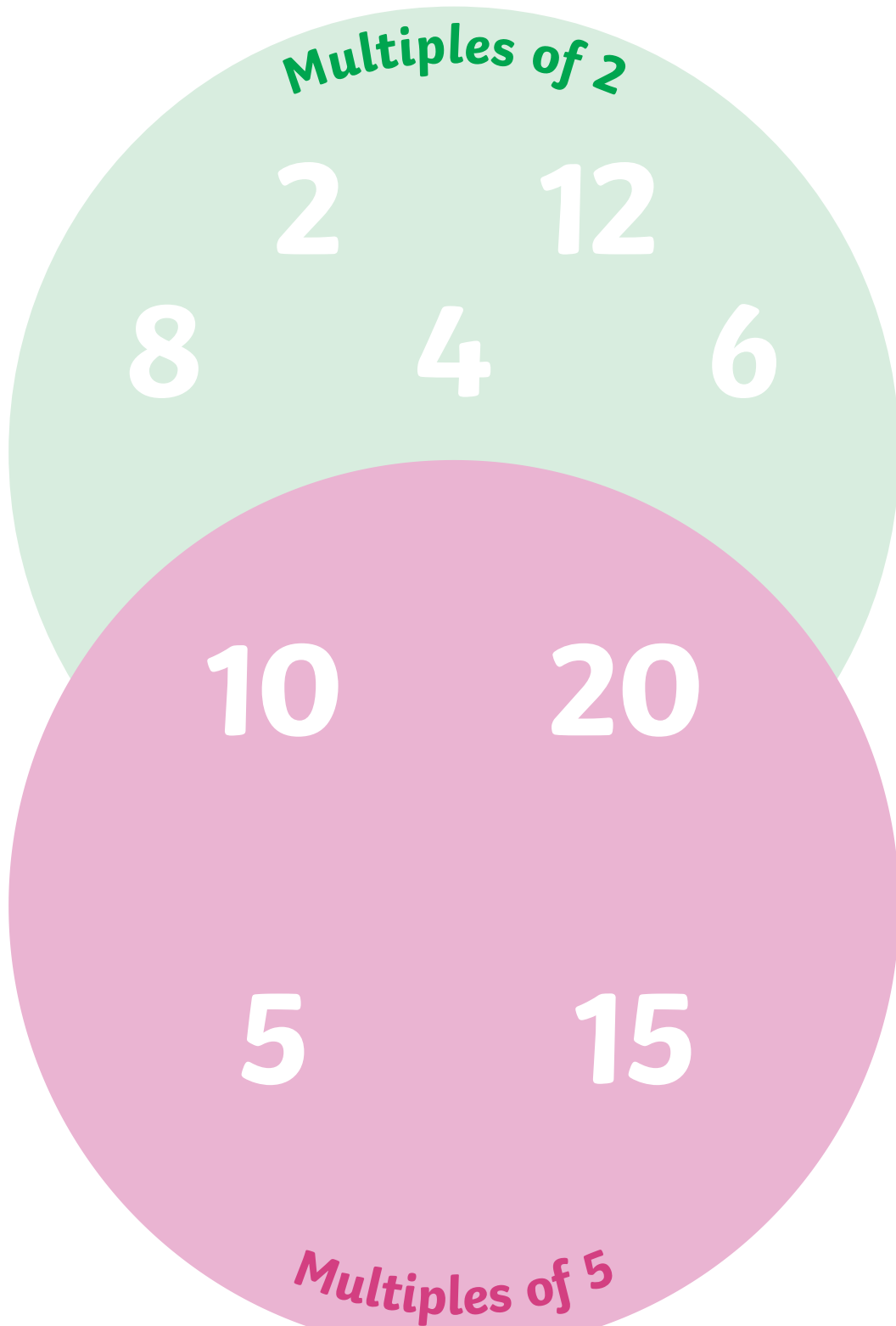




# Common Multiples

A common multiple is a multiple of 2 or more numbers.

E.g. 10 is a common multiple of 2 and 5.



# Factors and Multiples

A factor can be used to divide a number and produce a whole number answer.  
Factors come in pairs.

Multiples appear in the number's multiplication table. You can calculate them by counting on by that number.

## What are all the factors of 12?

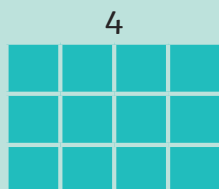
## What are all the multiples of 12?



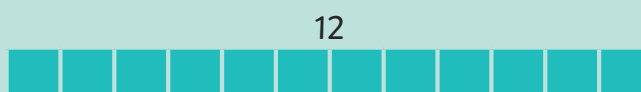
$$12 \div 1 = 12$$



$$12 \div 2 = 6$$



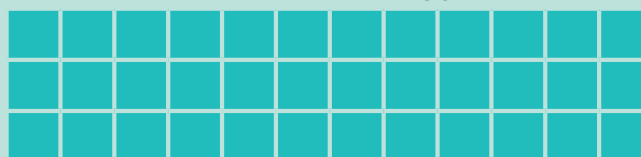
$$12 \div 3 = 4$$



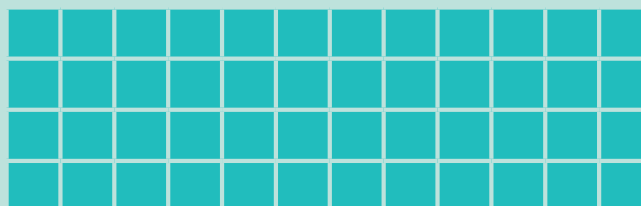
$$12 + 12 = 24$$



$$12 + 12 + 12 = 36$$



$$12 + 12 + 12 + 12 = 48$$



The factors of 12 are:  
1, 2, 3, 4, 6 and 12

The multiples of 12 include:  
12, 24, 36, 48...

## Remember:

A factor is a number that is multiplied with another, making a product.

## Remember:

Multiples are a product of one of the factors that you started your calculation with.



# 2

How many 12s are there in 59?

The answer to this question is 4, which is written above the 9.

Write the product of 4 and 12 (48) under the 59. Then subtract 48 from 59 giving 11.

The 1 is then brought down and written next to the 11 to make 111.

			4			
1	2	5	9	1		
	-	4	8	↓		
		1	1	1		

# 3

How many 12s are there in 111?

The answer to this question is 9, which is written above the 1.

Write the product of 9 and 12 (108) under the 111 and subtract it, giving 3.

			4	9		
1	2	5	9	1		
	-	4	8	↓		
		1	1	1		
	-	1	0	8		
				3		

# 4

Extend 591 into the decimals to continue the process of long division.

			4	9		
1	2	5	9	1	.	0 0
	-	4	8	↓	↓	
		1	1	1		
	-	1	0	8	↓	
				3	0	

# 5

How many 12s are there in 30?

The answer to this question is 2, which is written above the 0 in the tenths place.

Write the product of 2 and 12 (24) under the 30 and subtract

			4	9	.	2
1	2	5	9	1	.	0 0
	-	4	8	↓	↓	↓
		1	1	1		
	-	1	0	8	↓	
				3	0	
			-	2	4	↓
					6	0

# 6

How many 12s are there in 60?

The answer to this question is 5, which is written above the 0 in the hundredths place.

Write the product of the 5 and the 12 (60) under the 60 and subtract it, giving zero.

Always recheck your method of calculation.

			4	9	.	2	5
1	2	5	9	1	.	0	0
	-	4	8	↓			
		1	1	1			
	-	1	0	8			
				3	0		
			-	2	4		
					6	0	
					-	6	0
							0

# 1

The number by which another number is to be divided is known as the divisor.

The number being divided is known as the dividend. When we divide, we are wanting to share the dividend by the divisor.

So in this case, we want to see how many times 46 will go into 609.

Let's have a go at solving this number equation.

	4	6	6	0	9	

# 2

How many 46s are there in 60?

46 doesn't go into 6 but it does go into 60. The answer to this question is 1, which is written above the 0.

Write the product of 1 and 46 (46) under the 60 and subtract it, giving 14.

The 9 is then brought down and written next to the 14 to make 149.

				1		
	4	6	6	0	9	
		-	4	6	↓	
			1	4	9	

# 3

How many 46s are there in 149?

The answer to this question is 3, which is written above the 9.

Write the product of 3 and 46 (138) under the 149 and subtract it, giving 11.

So  $609 \div 46 = 13 \text{ r}11$

Always recheck your method of calculation.

				1	3	r11
	4	6	6	0	9	
		-	4	6	↓	
			1	4	9	
		-	1	3	8	
				1	1	



# 1

Let's look at the number calculation:

$$1735 \times 37$$

Place the numbers one on top of the other, lining up the thousands, hundreds, tens and ones.

	TTh	Th	H	T	O	
		1	7	3	5	
×				3	7	

# 2

We always start by multiplying by the smallest value. This is the digit in the ones place in this calculation.

Multiply the ones digit in the two-digit number by the digit in the ones place in the four-digit number.

$$\begin{aligned} 5 \times 7 &= 35 \\ &= 35 \text{ ones} \\ &= 3 \text{ tens and } 5 \text{ ones} \end{aligned}$$

Place the 5 ones in the ones answer and regroup the 3 tens by writing a small 3 in the tens column.

	TTh	Th	H	T	O	
		1	7	3	5	
x				3	7	
				3	5	

# 3

Next multiply the ones in the two-digit number by the tens in the four-digit number, remembering to regroup the '3' in the tens column.

$$\begin{aligned} 7 \times 3 \text{ tens} + 3 \text{ ten} \\ &= 7 \times 3 + 3 \\ &= 24 \text{ tens} \\ &= 2 \text{ hundreds and } 4 \text{ tens} \end{aligned}$$

Place 4 into the tens answer and regroup the 2 hundreds by writing a small 2 in the hundreds column.

	TTh	Th	H	T	O	
		1	7	3	5	
x				3	7	
			2	4	3	5

# 4

Next multiply the ones in the two-digit number by the hundreds in the four-digit number.

$$\begin{aligned}
 &7 \times 7 \text{ hundreds} + 2 \\
 &= 7 \times 7 + 2 \\
 &= 51 \text{ hundreds} \\
 &= 5 \text{ thousands and } 1 \text{ hundred}
 \end{aligned}$$

Place the 1 into the hundreds part of the answer and regroup the 5 thousands by writing a small 5 in the thousands column.

	TTh	Th	H	T	O	
		1	7	3	5	
×				3	7	
		5	1 <sub>2</sub>	4 <sub>3</sub>	5	

# 5

Next, multiply the ones in the two-digit number by the thousands in the four-digit number.

$$\begin{aligned}
 &7 \times 1 \text{ thousand} + 5 \\
 &= 7 \times 1 + 5 \\
 &= 12 \text{ thousands} \\
 &= 1 \text{ ten thousand and } 2 \text{ thousands}
 \end{aligned}$$

Place these numbers into the answer.

	TTh	Th	H	T	O	
		1	7	3	5	
×				3	7	
	1	2 <sub>5</sub>	1 <sub>2</sub>	4 <sub>3</sub>	5	

# 6

Next we are going to multiply the tens in the two-digit number by the four-digit number.

Because we are multiplying by 30, we need to place a zero in the right-hand column as a place holder.

	TTh	Th	H	T	O	
		1	7	3	5	
×				3	7	
	1	2 <sub>5</sub>	1 <sub>2</sub>	4 <sub>3</sub>	5	
					0	

# 7

Multiply the tens digit in the two-digit number by the digit in the ones place in the four-digit number.

$$\begin{aligned}
 &3 \text{ tens} \times 5 \\
 &= 15 \text{ tens} \\
 &= 1 \text{ hundred and } 5 \text{ tens}
 \end{aligned}$$

Place the 5 tens in the tens answer section and regroup the 1 hundred by writing a small 1 in the hundreds column.

	TTh	Th	H	T	O	
		1	7	3	5	
×				3	7	
	1	2 <sub>5</sub>	1 <sub>2</sub>	4 <sub>3</sub>	5	
			1	5	0	

# 8

Multiply the tens digit in the two-digit number by the digit in the tens place in the four-digit number.

$$3 \text{ tens} \times 3 \text{ tens} = 9 \text{ hundreds}$$

Add the regrouped 1 hundred.

$$\begin{aligned} 9 \text{ hundreds} + 1 \text{ hundred} \\ = 10 \text{ hundreds} \\ = 1 \text{ thousand} \end{aligned}$$

Place a 0 in the hundreds answer section and regroup the 1 thousand by writing a small 1 in the thousands column.

	TTh	Th	H	T	O	
		1	7	3	5	
×				3	7	
	1	2 <sub>5</sub>	1 <sub>2</sub>	4 <sub>3</sub>	5	
			0 <sub>1</sub>	5	0	

# 9

Multiply the tens digit in the two-digit number by the digit in the hundreds place in the four-digit number.

$$\begin{aligned} 3 \text{ tens} \times 7 \text{ hundreds} \\ = 21 \text{ thousands} \end{aligned}$$

Add the regrouped 1 thousand.

$$\begin{aligned} 21 \text{ thousands} + 1 \text{ thousand} \\ = 22 \text{ thousands} \\ = 2 \text{ ten thousands and } 2 \text{ thousands} \end{aligned}$$

Place 2 into the thousands answer section and regroup the 2 ten thousands by writing a small 2 in the ten thousands column.

	TTh	Th	H	T	O	
		1	7	3	5	
×				3	7	
	1	2 <sub>5</sub>	1 <sub>2</sub>	4 <sub>3</sub>	5	
		2 <sub>1</sub>	0 <sub>1</sub>	5	0	

# 10

Multiply the tens digit in the two-digit number by the digit in the thousands place in the four-digit number.

$$3 \text{ tens} \times 1 \text{ thousand} = 3 \text{ ten thousands}$$

Add the regrouped 2 thousands.

$$3 \text{ ten thousands} + 2 \text{ ten thousands} = 5 \text{ ten thousands}$$

Place 5 into the ten thousands answer section.

	TTh	Th	H	T	O	
		1	7	3	5	
×				3	7	
	1	2 <sub>5</sub>	1 <sub>2</sub>	4 <sub>3</sub>	5	
	5 <sub>2</sub>	2 <sub>1</sub>	0 <sub>1</sub>	5	0	

# 11

Add the answers together, starting with smallest value. If you need to regroup any numbers, complete this under the answer line.

The answer is 64 195.

Always recheck your method of calculation.

	TTh	Th	H	T	O	
		1	7	3	5	
×				3	7	
	1	2 <sub>5</sub>	1 <sub>2</sub>	4 <sub>3</sub>	5	
	5 <sub>2</sub>	2 <sub>1</sub>	0 <sub>1</sub>	5	0	
	6	4	1	9	5	

# Prime Numbers

A **prime number** is a whole number which can only be divided by 1 and itself.

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

**Remember these facts about prime numbers!**

There are no even prime numbers except 2.

There are no prime numbers ending in 5, except 5.

The digits can't add up to 3 except 3 (digital root).

# 1

1	2	5	2	2	7	.	2	0

The number by which another number is to be divided is known as the divisor.

The number being divided is known as the dividend. When we divide, we are wanting to share the dividend by the divisor.

So in this case, we want to see how many times 12 will go into 5227.20

Let's have a go at solving this number equation.



# 2

			4				
1	2	5	2	<sup>4</sup> 2	7	2	0

Divide 52 hundreds by 12.

This gives a result of 4 (hundreds) remainder 4.

The remainder 4 (hundreds) is exchanged for 40 tens. This is shown by a small 4 in front of the existing 2 tens to make 42 tens.

The 4 is written in the hundreds position of the answer above the line.

# 3

			4	3			
1	2	5	2	<sup>4</sup> 2	<sup>6</sup> 7	2	0

Divide 42 (tens) by 12.

This gives the result of 3 (tens) remainder 6.

The 3 is written in the tens position of the answer above the line. The remainder 6 (tens) is exchanged for 60 ones.

This is shown by a small 6 in front of the existing 7 ones to make 67 ones.

## 4

			4	3	5		
1	2	5	2	<sup>4</sup> 2	<sup>6</sup> 7	<sup>7</sup> 2	0

Divide 67 (ones) by 12.

This gives a result of 5 ones remainder 7.

The 5 is written in the ones position of the answer above the line. The remainder 7 (ones) is exchanged for 70 tenths.

This is shown by a small 7 in front of the existing 2 tenths to make 72 tenths.

## 5

			4	3	5	6	
1	2	5	2	<sup>4</sup> 2	<sup>6</sup> 7	<sup>7</sup> 2	0

Divide 72 (tenths) by 12.

This gives the result of 6 (tenths).

This 6 is written in the tenths position of the answer above the line.

$$5227.20 \div 12 = 436.6$$

Always recheck your method of calculation.

# 1

1	2	5	2	8	4	

The number by which another number is to be divided is known as the divisor.

The number being divided is known as the dividend. When we divide, we are wanting to share the dividend by the divisor.

So in this case, we want to see how many times 12 will go into 5284.

Let's have a go at solving this number equation.

# 2

			4			
1	2	5	2	<sup>4</sup> 8	4	

Divide 52 (hundreds) by 12.

This gives the result of 4 (hundreds) remainder 4.

The remainder 4 (hundreds) is exchanged for 40 tens.

This is shown by a small 4 in front of the existing 8 tens to make 48 tens. The 4 is written in the hundreds position of the answer above the line.

# 3

			4	<sup>4</sup>		
1	2	5	2	<sup>4</sup> 8	4	

We divide 48 (tens) by 12.

This gives the result of 4 (tens).

The 4 is written in the tens position of the answer above the line.

# 4

			4	4	0	r4
1	2	5	2	<sup>4</sup> 8	4	

We divide the 4 (ones) by 12.

This cannot be done, so there are four remaining.

A zero is placed in the ones answer section as well as remainder 4.

So  $5284 \div 12 = 440 \text{ r}4$

Always recheck your method of calculation.

# Subtracting Six-Digit Numbers Using Column Method

1

	4	9	7	2	6	4
-	3	2	4	8	1	9

Place the numbers one on top of the other, lining up the thousands, hundreds, tens and ones. Start with the lowest value place value column. In this calculation, subtract the ones (the answer to  $4 - 9$  is negative).

2

	4	9	7	2	<sup>5</sup> / <del>6</del>	<sup>1</sup> 4
-	3	2	4	8	1	9
						5

Exchange a ten from the 60 to give 14 ones. Subtract the ones:  $14 - 9 = 5$ .

3

	4	9	7	2	<sup>5</sup> / <del>6</del>	<sup>1</sup> 4
-	3	2	4	8	1	9
					4	5

Subtract the tens:  $50 - 10 = 40$ .

4

	4	9	<sup>6</sup> / <del>7</del>	<sup>1</sup> 2	<sup>5</sup> / <del>6</del>	<sup>1</sup> 4
-	3	2	4	8	1	9
				4	4	5

Subtract the hundreds (the answer to  $200 - 800$  is negative). Exchange a thousand from the 7000 to give:  $1200 - 800 = 400$ .

5

	4	9	<sup>6</sup> / <del>7</del>	<sup>1</sup> 2	<sup>5</sup> / <del>6</del>	<sup>1</sup> 4
-	3	2	4	8	1	9
	1	7	2	4	4	5

Subtract the thousands:  $6000 - 4000 = 2000$ .  
Subtract the ten thousands:  $90\ 000 - 20\ 000 = 70\ 000$ .  
Subtract the hundred thousands:  $400\ 000 - 300\ 000 = 100\ 000$ .

6

	4	9	7	2	6	4
-	3	2	4	8	1	9
	1	7	2	4	4	5

Don't forget to check your answer!

# 1

	HTh	TTh	Th	H	T	O
	4	9	7	2	6	4
-	3	2	4	8	1	9

Let's look at the number calculation:

$$497\ 264 - 324\ 819$$

Place the numbers one on top of the other, lining up the hundred thousands, ten thousands, thousands, hundreds, tens and ones.

2

	HTh	TTh	Th	H	T	O
	4	9	7	2	<sup>5</sup> <del>6</del>	<sup>1</sup> 4
-	3	2	4	8	1	9
						5

Subtract the ones  
(the answer to  $4 - 9$  is negative).

Exchange 1 ten from the 60 to give 14 ones. Subtract the ones:  $14 - 9 = 5$ .

3

	HTh	TTh	Th	H	T	O
	4	9	7	2	<sup>5</sup> <del>6</del>	<sup>1</sup> 4
-	3	2	4	8	1	9
					4	5

Subtract the tens:  
 $50 - 10 = 40$



## 4

	HTh	TTh	Th	H	T	O
	4	9	<sup>1</sup> <del>7</del>	<sup>1</sup> 2	<sup>5</sup> <del>6</del>	<sup>1</sup> 4
-	3	2	4	8	1	9
				4	4	5

Subtract the hundreds  
(the answer to  $200 - 800$  is negative).

Exchange 1 thousand from the 7000  
to give:  $1200 - 800 = 400$ .

## 5

	HTh	TTh	Th	H	T	O
	4	9	<sup>1</sup> <del>7</del>	<sup>1</sup> 2	<sup>5</sup> <del>6</del>	<sup>1</sup> 4
-	3	2	4	8	1	9
	1	7	2	4	4	5

Subtract the thousands:  
 $6000 - 4000 = 2000$

Subtract the hundred thousands:  
 $400\ 000 - 300\ 000 = 100\ 000$

Subtract the ten thousands:  
 $90\ 000 - 20\ 000 = 70\ 000$

Always recheck your method  
of calculation.

**add**

**subtract**

**multiply**

**divide**

**order of  
operations**

**estimate**

**predict**

**solve**

**common multiple**

**lowest common  
multiple**

**factors**

**common factors**

**highest common  
factor**

**prime number**

**formal written  
method**

**exponents**

**BODMAS**

**regroup**

**exchange**

**multi-step  
problems**

**two-step  
problems**

**one-step  
problem**

**inverse**

**rounding**

**rounded to a certain  
degree of accuracy**



# Addition, Subtraction, Multiplication and Division

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