

1.1 Numbers and place value

The number 2825 in words is 'Two thousand, eight hundred and twenty five'.

Thousands	Hundreds	Tens	Units
2	8	2	5

Each figure has a different **value** as shown in the table.

Example 1

Write the number eight thousand and fifty three in figures.

Solution 1

Put the figures in the number under the column headings shown above.

TH	H	T	U
8	0	5	3

8 has the value eight thousand. 8 goes in the 'Thousands' column.

There are no 'Hundreds' so 0 goes in the 'Hundreds' column.

5 stands for 'fifty' and has the value five tens. 5 goes in the 'Tens' column.

3 has the value three units. 3 goes in the 'Units' column.

The answer is 8053.

Numbers are put in order of size by looking at the value of the figures in each number.

Example 2

Put these numbers in order: 347 50 678 9030 400 Start with the smallest.

Solution 2

50 contains only tens and units so this is the smallest number.

347, 678 and 400 all contain hundreds, tens and units.

347 only has three hundreds so this is the smallest of the three numbers.

400 has four hundreds so this is the next largest number.

678 has six hundreds so this is the largest number of the three.

9030 has nine thousands so this is the largest number.

The correct order is 50, 347, 400, 678, 9030

TH	H	T	U
	3	4	7
		5	0
	6	7	8
9	0	3	0
	4	0	0

Exercise 1A

- 1 Write in words the numbers shown in the table.

	TH	H	T	U
a	4	2	1	3
b	2	3	1	0
c	3	2	0	6
d	4	0	5	4
e	5	0	0	2

- 2 The number 214 written in hundreds, tens and units is $200 + 10 + 4$
Write the following numbers in hundreds, tens and units.

a 315 b 256 c 432 d 329 e 156

- 3 The number 3126 written in thousands, hundreds, tens and units is $3000 + 100 + 20 + 6$
Write the following numbers in thousands, hundreds, tens and units.

a 2315 b 6483 c 1267 d 7452 e 2383

- 4 Written as a single number $100 + 50 + 6 = 156$
Write the following as single numbers.

a $200 + 30 + 7$ b $400 + 50 + 8$ c $600 + 40 + 3$
 d $500 + 90$ e $400 + 6$ f $1000 + 200 + 30 + 4$
 g $2000 + 500 + 40 + 7$ h $5000 + 600 + 70 + 8$ i $3000 + 40 + 7$
 j $2000 + 300 + 8$ k $5000 + 9$

- 5 Copy the table of column headings. Use it to write these numbers in figures.

Thousands	Hundreds	Tens	Units

a four hundred and eighty five
 b five thousand, two hundred and sixty seven
 c eight hundred and four
 d four thousand and twenty one
 e six thousand and eight.

- 6 Copy the table of column headings above and use it to write these numbers in words.

a 25 b 369 c 409 d 6429 e 4079 f 6004

- 7 Copy the table of column headings.

Use it to put these whole numbers in order. Start with the smallest.

a 356 48 7 3466 b 566 345 67 8 c 65 56 404 232
 d 345 3800 2333 999 e 367 361 1001 34

- 8 Write the following numbers in order. Start with the smallest.

a 486 32 533 21 4 b 333 234 108 32 47
 c 438 444 423 430 407 d 207 270 720 277 727

- 9 Write the following numbers in order. Start with the smallest.
- thirty eight, 407, sixty four, 397, four hundred and twenty
 - 507, four hundred and thirteen, 366, two hundred and three
- 10 Write down the value of the 3 in the number 356
- 11 Write down the value of the 8 in the number 3589
- 12 Write down the value of the 3 in the number 3070

- 13 Here are 4 cards. Each card has a figure on it. The cards show the number 2643.

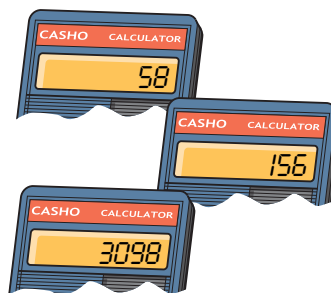


- Arrange the four cards to make the biggest number possible.
- Arrange the four cards to make the smallest number possible.
- Put a number in the last card to make the answer 10 times bigger.



- 14 Write the following numbers in figures
- ten thousand
 - fourteen thousand, eight hundred and twenty four
 - eighteen thousand, four hundred and seven
 - twenty three thousand and forty eight
 - forty two thousand and six
 - one hundred thousand
 - two million

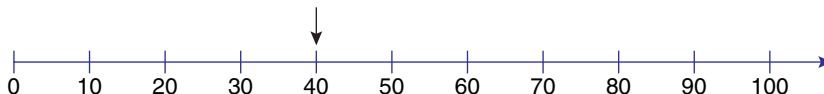
- 15 Here are some numbers on a display. Write down the numbers in words



1.2 Number lines

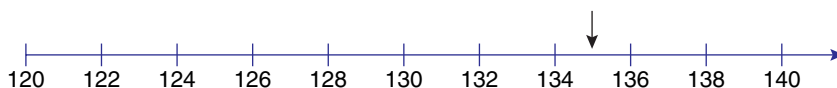
Whole numbers can be shown as positions on a number line.

Here is a number line which stretches from 0 to 100



The arrow points to the number 40

This number line starts at 120 and ends at 140



The arrow points to the number 135

Number lines can be used to add one number to another.

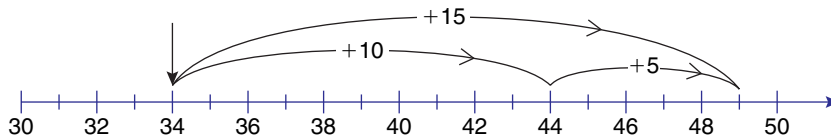
Example 3

Calculate $34 + 15$, using a number line.

Solution 3

On a number line which begins at 30 and ends at 50, mark 34 with an arrow.
Count 15 divisions from 34

The diagram shows $34 + 15 = 49$



Another way of doing this is to add 10 onto 34 to get 44 and then add 5 onto 44 to get 49

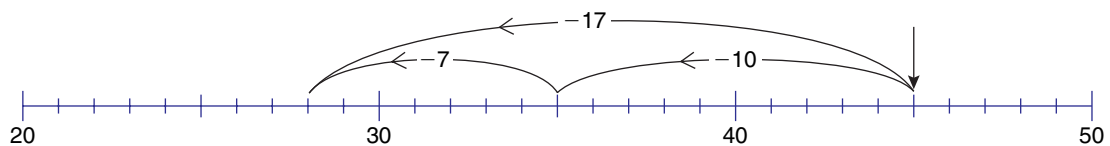
Number lines can also be used to subtract one number from another.

Example 4

Calculate $45 - 17$ using a number line.

Solution 4

On a number line which begins at 20 and ends at 50 mark 45 with an arrow.
Count 17 divisions back from 45

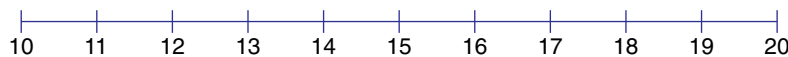


Another way of doing this is to go back 10 to 35 then go back 7 to end at 28

Exercise 1B

1 Copy the number line and mark the following numbers with an arrow.

a 11 **b** 19 **c** 15 **d** 13 **e** 17



2 Copy the number line and mark the following numbers with an arrow.

a 3 **b** 6 **c** 11 **d** 14 **e** 19

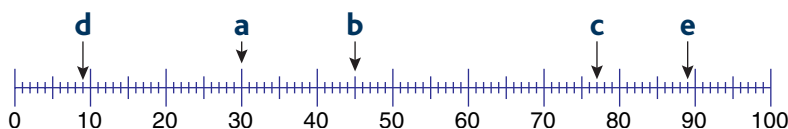


3 Copy the number line and mark the following numbers with an arrow.

a 50 **b** 75 **c** 62 **d** 88 **e** 91



4 Write down the numbers marked on the number line.

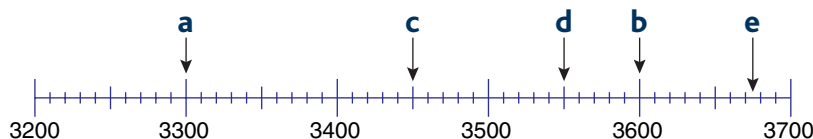


5 Copy the number line and mark the following numbers with an arrow.

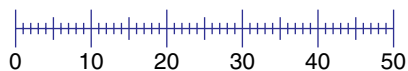
- a 2200 b 2400 c 2050 d 2480 e 2150



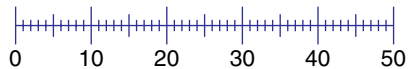
6 Write down the numbers marked on the number line.



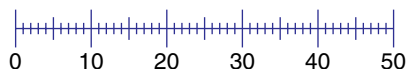
7 Use the number line to work out $24 + 17$



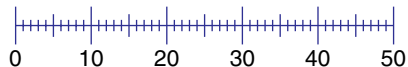
8 Use the number line to work out $16 + 32$



9 Use the number line to work out $46 - 28$



10 Use the number line to work out $42 - 18$



1.3 Rounding numbers

There are 783 students in a school. There are *about* 800 students in the school. The number of students has been **rounded** to the nearest 100

There are 22 sweets in a bag. There are *about* 20 sweets in the bag. The number of sweets has been rounded to the nearest 10

There are 3500 people at a concert. There are *about* 4000 people at the concert. If the number is exactly halfway between the two end points then **round up**. The number of people at the concert has been rounded up to the nearest 1000

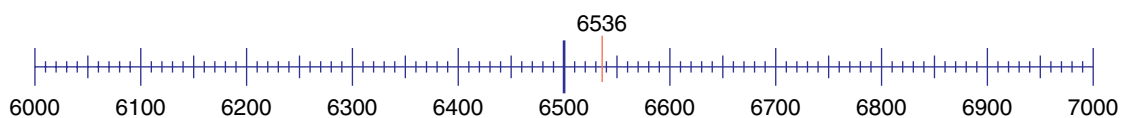
Example 5

The number of people in a football ground at the start of the game is 6536

- a Write 6536 correct to the nearest 1000 b Write 6536 to the nearest 100

Solution 5

- a 6536 is between 6000 and 7000. 6500 is halfway between these two numbers. 6536 is more than 6500 so it is nearer to 7000 than 6000 so the answer is 7000



- b 6536 is between 6500 and 6600. 6550 is halfway between these two numbers. 6536 is less than 6550 so it is nearer to 6500 than 6600 so the answer is 6500



Exercise 1C

- 1 Write each of the following numbers to the nearest 10
a 48 **b** 56 **c** 73 **d** 85 **e** 8 **f** 98
- 2 Write each of the following numbers to the nearest 100
a 459 **b** 766 **c** 333 **d** 450 **e** 88 **f** 969
- 3 Write each of the following numbers to the nearest 1000
a 3400 **b** 2410 **c** 6600 **d** 4870 **e** 3333 **f** 9896
- 4 Write each of the following numbers to the nearest 1000
a 4399 **b** 7378 **c** 6904 **d** 5050 **e** 9500 **f** 6499
- 5 **a** Write 2340 to the nearest 100 **b** Write 28 680 to the nearest 1000
c Write 5876 to the nearest 10 **d** Write 677 to the nearest 1000
e Write 4579 to the nearest 10 **f** Write 24 589 to the nearest 100
- 6 **a** There are 1483 students in a school. Write down the number of students correct to the nearest 100 students.
b Rob drove a distance of 942 miles on holiday. Write down the distance Rob drove correct to the nearest 100 miles.
c There are 366 days in a leap year. Write down the number of days in a leap year correct to the nearest 10 days.
d Liz lives 18 kilometres from her work. Write down the distance Liz lives from work to the nearest 10 kilometres.
e Anis earns £454 in a month. Write down how much Anis earns correct to the nearest £100.
- 7 **a** Write 24 000 correct to the nearest 10 000
b Write 28 500 correct to the nearest 10 000
c Write 23 600 correct to the nearest 1000
d A car is advertised for sale for £13 999. What is the sale price correct to the nearest £1000?
e The distance from London to Sydney is 13 642 miles. Write this distance correct to the nearest 100 miles.
- 8 **a** During Comic Relief day twenty eight million, three hundred and twenty four thousand, four hundred and eighty pounds had been promised. Write this amount to the nearest million pounds.
b The attendance at a football ground is 41 879. Write this to the nearest 10 000
c The number of people living in a town is 18 345. Write this number to the nearest 1000
d The number of passengers carried on one day by a railway company is 13 479. Write this number to the nearest 100
e Fred wins a prize of £13 487. Write this amount to the nearest £100
f A catering company delivers 56 845 meals each day. Write this number to the nearest 100

- 9 There are 800 people, correct to the nearest 100, living in a village.
- What is the largest number of people that could be living in the village?
 - What is the smallest number of people that could be living in the village?
- 10 There are 14 000 people, correct to the nearest 1000, at a football match.
- What is the largest number of people that could be at the football match?
 - What is the smallest number of people that could be at the football match?

1.4 Mental methods

Often you can work out the answer to a calculation by doing it in your head.

To do this you must know your **number bonds** to 100

This is useful when you are working out change from £1, for example.

In the table are some ways of doing calculations mentally.

Example 6

Fred buys a drink for 54p.
Work out his change from £1

Solution 6

Count up to the next ten.
 $54 + 6 = 60$
 Count on to the next 100
 $60 + 40 = 100$
 So the change is $6 + 40 = 46$ p.

Example 7

Work out $136 + 58$

Solution 7

$130 + 50 = 180$ Add up the tens.
 $6 + 8 = 14$ Add up the units.
 $180 + 14 = 194$ Add the two results together.

Example 8

Work out $84 - 38$

Solution 8

$84 - 30 = 54$ Subtract 30 first.
 $54 - 8 = 46$ Then subtract the 8

Add 9	Add 10 then subtract 1
Add 99	Add 100 then subtract 1
Add 90	Add 100 then subtract 10
Add 48	Add 50 then subtract 2
Add 42	Add 40 then add 2
99×8	$100 \times 8 - 1 \times 8$ $= 800 - 8$ $= 792$
$£1.99 \times 5$	$£2 \times 5 - 1\text{p} \times 5$ $= £10 - 5\text{p}$ $= £9.95$
$£1.48 \times 3$	$£1.50 \times 3 - 2\text{p} \times 3$ $= £4.50 - 6\text{p}$ $= £4.44$
Change from £10	Add on when giving change e.g. $£10 - £5.86$ Add on 4p to make £5.90 Add on 10p to make £6 Add on £4 to make £10 This gives £4.14
$100 - 34$	Add on 6 to 34 to make 40 Add on 60 to 40 to make 100 This gives $100 - 34 = 66$
$142 - 76$	Add on 4 to 76 to make 80 Add on 60 to 80 to make 140 Add on 2 to 140 to make 142 This gives $142 - 76 = 66$



Exercise 1D

1 Work out the following mentally and write down your answer. Jot down anything you need.

a $23 + 58$

b $38 + 24$

c $45 + 43$

d $38 + 46$

e $57 + 68$

f $49 + 68$

g $36 + 76$

h $45 + 78$

i $76 + 89$

j $55 + 36 + 20$

k $40 + 37 + 39$

2 Work out the following mentally and write down your answer.

a $26 - 13$

b $38 - 21$

c $47 - 24$

d $68 - 34$

e $98 - 16$

f $43 - 29$

g $23 - 14$

h $54 - 29$

i $55 - 29$

j $64 - 29$

k $74 - 28$

l $93 - 27$

3 Work out the following and write down your answer. Jot down anything you need.

a Add the answer to 10×6 to the answer to 4×6

b Add the answer to 5×7 to the answer to 3×8

c Add the answer to 4×8 to the answer to 9×4

d Add the answer to 3×7 to the answer to 5×9

e Add the answer to 6×7 to the answer to 4×9

4 Work out the following and write down your answer. Jot down anything you need.

a Subtract the answer to 4×5 from the answer to 9×6

b Subtract the answer to 2×8 from the answer to 8×5

c Subtract the answer to 6×5 from the answer to 7×6

d Subtract the answer to 4×9 from the answer to 7×7

e Subtract the answer to 5×9 from the answer to 7×8

5 Copy and complete this multiplication table.

x	2		7
		15	35
8			
	20		

- 6
- Find the cost of two tins of paint at £1.99 each.
 - Find the cost of three cans of drink at 49p each.
 - Find the cost of six packets of sweets at 99p each.
 - Find the cost of four boxes of cereal at 98p each.
 - Find the cost of six litres of petrol at 95p each litre.

1.5 Written calculations

Some calculations are too hard to be done mentally. It helps to write them down. The four **operations** are **addition, subtraction, multiplication and division**.

Addition

Example 9

Work out $345 + 48$

Solution 9

Add the 4, 4 and 1 in the tens column. Put the answer in the space between the bars.

$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{U} \\ 3 \quad 4 \quad 5 \\ + \quad \quad 4 \quad 8 \\ \hline \quad \quad 3 \\ \hline \quad \quad 1 \end{array}$$

Put the numbers in columns. Figures with equal place value go in the same column. For example, 5 and 8 are units so they go in the same column.

$5 + 8 = 13$
Put 3 in the answer space in the units column and 1 'ten' in the tens column.

Finally, add the numbers in the hundreds column. $3 + 0 = 3$ and place in the answer space.

$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{U} \\ 3 \quad 4 \quad 5 \\ + \quad \quad 4 \quad 8 \\ \hline 3 \quad 9 \quad 3 \\ \hline \quad \quad 1 \end{array}$$

The result of adding two or more numbers is called the **sum** of those numbers.

Subtraction

Example 10

Work out $365 - 258$

Solution 10

$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{U} \\ 3 \quad 6 \quad 5 \\ - \quad 2 \quad 5 \quad 8 \\ \hline \quad 3 \quad 5 \quad 15 \\ - \quad 2 \quad 5 \quad 8 \\ \hline \quad \quad \quad 7 \end{array}$$

Put the numbers in columns.

$5 - 8$ you cannot do so borrow one ten from the tens column to make 15. $15 - 8 = 7$. Put 7 in the answer space.

$$\begin{array}{r} 3 \quad 5 \quad 15 \\ - \quad 2 \quad 5 \quad 8 \\ \hline 1 \quad 0 \quad 7 \end{array}$$

Subtract the numbers in the tens and hundreds columns.

When a smaller number is subtracted from a larger number, the result is called the **difference** between the two numbers.



Exercise 1E

- Work out the following additions

a $367 + 128$	b $249 + 178$	c $255 + 24$
d $387 + 68$	e $567 + 128$	
- Work out the following additions

a $2367 + 2444$	b $1286 + 4306$	c $3457 + 345$	d $2039 + 768$
e $4506 + 967$	f $679 + 3888$	g $49 + 7608$	
- Work out the following subtractions

a $648 - 123$	b $459 - 320$	c $877 - 434$	d $561 - 186$
e $674 - 128$	f $345 - 137$	g $767 - 293$	h $856 - 173$
i $637 - 261$	j $543 - 181$		
- Work out the following subtractions

a $351 - 179$	b $427 - 289$	c $535 - 168$	d $422 - 175$
e $734 - 178$	f $852 - 653$	g $402 - 229$	h $646 - 188$
- Work out the following subtractions

a $400 - 168$	b $305 - 213$	c $704 - 178$
d $505 - 256$	e $903 - 387$	
- Find the sum of

a 387 and 269	b 1256 and 965	c 267 and 8799
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- Find the difference between

a 344 and 167	b 704 and 367	c 436 and 59
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- Find the missing numbers.

a $234 + ? = 476$	b $312 + ? = 508$	c $278 + ? = 566$
d $? + 255 = 400$	e $? + 363 = 532$	f $? + 419 = 722$
- Find the missing numbers.

a $213 - ? = 80$	b $235 - ? = 122$	c $428 - ? = 244$
d $? - 235 = 300$	e $? - 534 = 121$	f $? - 129 = 236$
- The sum of two numbers is 564. One of the numbers is 128
Work out the other number.
- The sum of three numbers is 425. Two of the numbers are 124 and 138
Work out the other number.
- The sum of three numbers is 238. Two of the numbers are 89 and 90
Work out the other number.
- The difference between two numbers is 120. The larger of the two numbers is 200
Work out the smaller number.

- 14** The difference between two numbers is 100. The smaller of the two numbers is 150
Work out the larger number.
- 15** The difference between two numbers is 140. One of the numbers is 200
Work out the other number.

Multiplication

The result of multiplying two numbers is called the **product**.

Example 11 shows how to multiply a two or three figure number by a single figure number.

Example 11

Work out 243×6

Solution 11

$$\begin{array}{r} \text{H T U} \\ 243 \\ \times \quad 6 \\ \hline 8 \\ \hline 1 \end{array}$$

Put the numbers in columns.
Start with the units column, $6 \times 3 = 18$
Put the 8 in the units column and the 1 in the tens column.

$$\begin{array}{r} 243 \\ \times \quad 6 \\ \hline 58 \\ \hline 21 \end{array}$$

Work out $6 \times '4 \text{ tens}' = 24 \text{ tens}$. Add in the 1 ten to get 25 tens.
Put the 5 in the tens column and the 2 in the hundreds column.

$$\begin{array}{r} 243 \\ \times \quad 6 \\ \hline 1458 \\ \hline 21 \end{array}$$

Work out $6 \times '2 \text{ hundreds}' = 12 \text{ hundreds}$.
Add the other 2 in the hundreds column to get 14 hundreds.

The calculation can also be done by splitting the 243 into 2 hundreds, 4 tens and 3 units and multiplying each by 6.

$$\begin{array}{r} 3 \times 6 = 18 \\ 40 \times 6 = 240 \\ 200 \times 6 = 1200 \\ \hline 1458 \end{array}$$



Exercise 1F

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 16×4 | 2 32×3 | 3 25×5 | 4 38×5 | 5 64×4 |
| 6 23×6 | 7 34×7 | 8 43×8 | 9 27×8 | 10 43×9 |
| 11 234×5 | 12 213×4 | 13 354×6 | 14 352×7 | 15 158×7 |
| 16 215×6 | 17 473×6 | 18 648×7 | 19 438×8 | 20 365×9 |

Examples 12 and 13 show the two main methods for multiplying a two or three figure number by a single figure number.

Each method multiplies by a number in the 10 times table. This is easy as multiplying a number by 10 means adding a nought on to the number for the answer.

For example $10 \times 24 = 240$

Example 12

Work out 20×40

Solution 12

$$\begin{aligned} 20 \times 40 &= 2 \times 10 \times 40 = 2 \times 400 && \text{because } 10 \times 40 = 400 \\ &= 800 \end{aligned}$$

Example 13

Work out 23×45

Solution 13

Method 1 – The box method

$$23 = 20 + 3$$

$$45 = 40 + 5$$

Write this in a box and complete the box as shown.

\times	20	3
40	800	120
5	100	15

$40 \times 20 = 800$ $5 \times 20 = 100$ $40 \times 3 = 120$ $5 \times 3 = 15$

The answer is $800 + 100 + 120 + 15 = 1035$

Method 2 – The column method

$$\begin{array}{r} \\ \\ \times \\ \hline \\ \\ \\ \hline \\ \\ \hline \end{array}$$

$$\begin{aligned} 5 \times 23 &= 115 \\ 40 \times 23 &= 920 \end{aligned}$$

The answer is $115 + 920 = 1035$

To multiply any whole number by 100 add two noughts to the number.

$$31 \times 100 = 3100$$

To multiply any whole number by 1000 add three noughts to the number.

$$76 \times 1000 = 76\,000$$

Exercise 1G

- 1** 10×9 **2** 10×16 **3** 10×27 **4** 10×60 **5** 20×60
6 20×70 **7** 32×21 **8** 42×21 **9** 35×23 **10** 31×35
11 43×32 **12** 44×33 **13** 53×45 **14** 42×44 **15** 76×87
16 64×86 **17** 45×77 **18** 99×99

Division

There are many different methods of carrying out division. Example 14 shows two methods for dividing by a single figure number.

Example 14

Work out $748 \div 5$

Solution 14**Method 1**

$$\begin{array}{r}
 748 \\
 - 500 \\
 \hline
 248 \\
 - 200 \\
 \hline
 48 \\
 - 45 \\
 \hline
 3
 \end{array}$$

$$748 \div 5 = 149 \text{ remainder } 3$$

Take off 100 5s

Take off another 40 5s

Take off 9 5s and you are left with a remainder of 3

$$100 + 40 + 9 = 149$$

Method 2

$$\begin{array}{r}
 1 \\
 5 \overline{)7248} \\
 \hline
 5 \overline{)7248} \\
 \hline
 14 \\
 5 \overline{)7248} \\
 \hline
 149 \\
 5 \overline{)7248} \\
 \hline
 3
 \end{array}$$

$$748 \div 5 = 149 \text{ remainder } 3$$

7 in the hundreds column divided by 5 is 1 in the hundreds column with a remainder of 2

24 in the tens column divided by 5 is 4 in the tens column with a remainder of 4

48 in the units column divided by 5 is 9 in the units column with a remainder of 3

**Exercise 1H**

- 1** $48 \div 4$ **2** $49 \div 7$ **3** $47 \div 3$ **4** $58 \div 3$
5 $64 \div 4$ **6** $124 \div 4$ **7** $276 \div 5$ **8** $568 \div 6$
9 $387 \div 6$ **10** $354 \div 6$ **11** $427 \div 7$ **12** $538 \div 8$

Example 15 shows how you can use the same method to divide by a two figure number.

Example 15

Work out $776 \div 24$

Solution 15

Method 1

$$\begin{array}{r}
 776 \\
 - 240 \\
 \hline
 536 \\
 - 240 \\
 \hline
 296 \\
 - 240 \\
 \hline
 56 \\
 - 48 \\
 \hline
 8
 \end{array}$$

from 10 times 24

from 10 times 24 again

from 10 times 24 one more time

from 2 times 24

$10 + 10 + 10 + 2 = 32$

$776 \div 24 = 32$ remainder 8

Method 2

$$\begin{array}{r}
 3 \\
 24 \overline{) 7756} \\
 \underline{72} \\
 56 \\
 \underline{48} \\
 8
 \end{array}$$

Write out the first few multiples of 24: 24 48 72 96
24 goes into 77 three times with a remainder of 5

56 in the units column divided by 24 is 2 in the units column with a remainder of 8

$776 \div 24 = 32$ remainder 8



Exercise 11

- 1** $345 \div 15$ **2** $480 \div 25$ **3** $369 \div 23$ **4** $487 \div 24$ **5** $567 \div 32$
6 $388 \div 18$ **7** $364 \div 26$ **8** $669 \div 53$ **9** $807 \div 47$ **10** $1354 \div 36$

1.6 Solving problems with and without a calculator

Problems can be solved using a calculator. You need to decide which operations are needed and make sense of the calculator display.

Example 16

A box holds 25 exercise books. Use a calculator to work out how many boxes are needed to hold 1450 exercise books.

Solution 16

To solve this, you need to use division.

$$1450 \div 25$$

$$= 58$$

Using a calculator, divide 1450 by 25 to find the number of boxes and press the equals button.

The calculator displays 58, so this is the answer.

58 boxes are needed.

Exercise 1J**Use a calculator for questions 1–10**

- 1 A tin of paint costs £2.39. Find the cost of 16 cans of paint.
- 2 A box of chocolates contains 25 chocolates. How many boxes of chocolates are needed for 10 000 chocolates?
- 3 Doris gets paid £6.35 for each hour she works. Find how much she gets paid for 23 hours work.
- 4 A machine fills 287 paint cans in an hour. How many cans does it fill in 14 hours?
- 5 There are 24 hours in a day and 365 days in a year. How many hours are there in a year?
- 6 23 367 people each paid £23 to watch a football match. How much was paid altogether?
- 7 182 adults and 374 children visited a museum. Each adult paid £4.10 and each child paid £2.40. Work out the total amount paid.
- 8 A shop sells 45 CDs at £7.99 each and 28 CDs at £12.49 each. How much money is taken?
- 9 The price of a concert ticket is £18. The total takings from ticket sales for one concert is £7614. How many people attend one concert?
- 10 Billy works for 38 hours and is paid £241.30. How much does he earn in an hour?

Sometimes you will have to do number problems without a calculator.

Example 17

The number of students in a school is 1250

All of the students are going on a school trip by bus.

Each bus holds 47 students.

Work out the number of buses that are needed to take students on the trip.

Solution 17

$$1250 \div 47$$

This is a division by 47 because each bus can carry 47 students.

$$47 \overline{) 12530} \begin{array}{r} 26 \\ \text{remainder } 28 \end{array}$$

The number of buses = 26 + 1 (to carry the 28 remaining students)

The number of buses = 27

Example 18

A can of cola costs 46p. A sandwich costs 98p. Work out the total cost of five cans of cola and two sandwiches.

Solution 18

$$\begin{array}{r} \text{Sandwiches} \quad 2 \times 98\text{p} = 196\text{p} \\ \text{Cola} \quad \quad \quad 5 \times 46\text{p} = \underline{230\text{p}} \\ \quad \quad \quad \quad \quad \quad \quad \quad 426\text{p} \end{array}$$

Use multiplication to work out the total cost of the sandwiches and then the total cost of the cola. Write the problem in columns and add the two totals.

The total cost is £4.26

**Exercise 1K**

- 1 There are 19 girls and 15 boys in a room. How many children are there in the room?
- 2 James has £103 in his bank account. He takes out £38. How much is left?
- 3 Work out how many 25p stamps can be bought for £2
- 4 A can of cola costs 39p. Work out the cost of three cans.
- 5 A sandwich costs 99p and a coffee costs 45p. Work out the total cost of two sandwiches and two coffees.
- 6 A bus can carry 54 students. How many students can four buses carry?
- 7 Fred earns £28 for 7 hours work. How much does he earn in an hour?
- 8 A crate holds 36 cans of drink. How many cans will 16 crates hold?
- 9 £252 is to be shared equally amongst seven people. How much money will each person get?
- 10 13 buses are used on a school trip. Each bus holds 36 students. How many students can go on the school trip?
- 11 A packet contains 26 biscuits. How many biscuits are there in 32 packets?
- 12 A book has 287 pages. Work out the number of pages in eight copies of the book.
- 13 John is packing cakes into boxes. Each box holds six cakes. How many full boxes can he pack if he has 154 cakes?
- 14 A new car costs £7450. Work out the cost of seven new cars.
- 15 The number of students in a school is 1300. All the students go on a school trip. How many buses are needed if one bus holds 48 students?

- 16** There are 32 pencils in a box. How many pencils are in 12 of these boxes?
- 17** Work out the number of seconds in 24 minutes.
- 18** A box of 16 calculators costs £448. Find the cost of one calculator.
- 19** A full toy pack contains 12 toys. Zoe has 850 toys to pack and makes as many full toy packs as she can. How many toys will be left over?

Checking calculations

To check whether an answer is correct, use the opposite or **inverse** operation of the operation that gave that answer.

The inverse (or opposite) of multiplying is dividing.

The inverse (or opposite) of dividing is multiplying.

The inverse (or opposite) of adding is subtracting.

The inverse (or opposite) of subtracting is adding.

Example 19

A student thinks that $46 \times 54 = 2484$

Check his answer.

Solution 19

The inverse operation to \times is \div

Calculate $2484 \div 54$.

The answer is 46 so the student was correct.

Another way of checking is to round the numbers to find a rough answer.

Round tens to the nearest 10 (for example round 11 to 10).

Round hundreds to the nearest 100 (for example round 189 to 200).

Round thousands to the nearest 1000 (for example round 3004 to 3000).

Example 20

A bottle of lemonade costs 98p. Shane thinks that the cost of 12 bottles is £117.60

Check his answer.

Solution 20

Round the 12 to 10 and the 98p to £1

$$10 \times £1 = £10$$

The cost should be about £10

Shane has got the answer wrong.

Exercise 1L

- Check these calculations by rounding and write down a rough answer.

a $38 \times 51 = 1938$	b $23 \times 19 = 2093$	c $424 \times 32 = 13\,568$
d $167 \times 28 = 13\,694$	e $456 \times 125 = 581$	
- Check these calculations by using the inverse operation.

a $487 - 238 = 251$	b $366 - 228 = 124$	c $956 - 237 = 721$
d $601 - 124 = 527$	e $3004 - 1025 = 1979$	
- A litre of fuel costs 96p. Grant thinks the cost of 48 litres of fuel is £393.60. Use rounding to check whether he is correct.
- Check these calculations using the inverse operation. Use a calculator.

a $46 \times 54 = 2484$	b $38 \times 28 = 3116$	c $124 \times 32 = 3968$
d $245 \times 36 = 88\,200$	e $456 \times 105 = 478\,080$	
- Check these calculations using the inverse operation. Use a calculator.

a $3024 \div 36 = 84$	b $4096 \div 64 = 64$	c $2187 \div 27 = 81$
d $5184 \div 144 = 63$	e $1932 \div 42 = 46$	

1.7 Factors, multiples, squares and cubes

Factors are numbers which divide exactly into a bigger number.

5 is a factor of 15 because 5 divides exactly 3 times into 15.

6 is not a factor of 15 because 6 does not divide exactly into 15.

Since $12 = 3 \times 4$, both 3 and 4 are factors of 12

$$20 = 1 \times 20$$

$$20 = 2 \times 10$$

$$20 = 4 \times 5$$

There are no other pairs of numbers which have a product of 20

So the factors of 20 are 1, 2, 4, 5, 10 and 20

Common factors

The factors of 10 are 1, 2, 5 and 10. The factors of 15 are 1, 3, 5 and 15

1 and 5 are factors of both 10 and 15. We say that 1 and 5 are **common factors** of 10 and 15

Multiples

A **multiple** of a number is found by multiplying it by any whole number.

To find the multiples of 3, multiply 3 by any whole number. Here are some of the multiples of 3

$$3 \times 1 = 3$$

$$3 \times 2 = 6$$

$$3 \times 3 = 9$$

$$3 \times 4 = 12$$

These are all in the 'three times' multiplication table.

Multiples of 2 are called **even** numbers.

Any number that ends in 2, 4, 6, 8 or 0 is even.

Whole numbers which are not even are called **odd** numbers.

Any number that ends in 1, 3, 5, 7 or 9 is odd.

Square numbers

Nine is a **square number** because it can be arranged into a *square* pattern of dots of 3 rows of 3



Square numbers are numbers that can be arranged into *square* patterns of dots.

9 is the third square number because it can be found from 3×3

16 is the fourth square number because it can be found from 4×4

The first ten square numbers are 1, 4, 9, 16, 25, 36, 49, 64, 81 and 100

Multiplication can be used to work out higher square numbers. For example, to find the 14th square number, work out 14×14 , which is 196

Cube numbers

Multiplying a number by itself three times gives a **cube number**.

$2 \times 2 \times 2 = 8$ 8 is a cube number.

The first five cube numbers are 1, 8, 27, 64 and 125

These are calculated from $1 \times 1 \times 1$, $2 \times 2 \times 2$, $3 \times 3 \times 3$, $4 \times 4 \times 4$ and $5 \times 5 \times 5$

The tenth cube number is 1000 ($10 \times 10 \times 10$)

Exercise 1M

- Which of the following numbers are factors of 12 ?
a 12 **b** 6 **c** 9 **d** 3 **e** 24
- Which of the following numbers are factors of 30?
a 1 **b** 20 **c** 15 **d** 3 **e** 6
- List all of the factors of the following numbers
a 8 **b** 10 **c** 16 **d** 24 **e** 28 **f** 32
g 36 **h** 40 **i** 50 **j** 60 **k** 100
- For the following numbers find the factor which goes with the given factor.
a 24, factor 12 **b** 22, Factor 2 **c** 18, factor 3 **d** 14, factor 2
e 25, factor 5 **f** 34, factor 2 **g** 39, factor 3 **h** 42, factor 6
i 42, factor 3 **j** 64, factor 4
- List all the common factors of the following pairs of numbers.
a 6 and 8 **b** 6 and 9 **c** 6 and 10 **d** 8 and 12
e 12 and 15 **f** 10 and 20 **g** 15 and 20 **h** 18 and 24
- Write down the first three multiples of the following numbers.
a 5 **b** 10 **c** 8 **d** 7 **e** 24

- 7 Write 'true or false' for the following statements.
- | | |
|---|--------------------------------|
| a 12 is a multiple of 2 | b 14 is a factor of 7 |
| c 24 is a multiple of 3 | d 72 is a multiple of 9 |
| e 12 is a multiple of 6 and a factor of 36 | f 9 is a factor of 27 |
| g 6 is a multiple of 1 | h 4 is a multiple of 12 |
- 8 Write down
- the fourth square number
 - the cube of 3
 - twice the sixth square number
 - a multiple of the tenth square number
 - the tenth cube number divided by the tenth square number
- 9 Work out
- 2 times the fourth square number
 - 3 times the seventh square number
 - the sum of the third square number and the fifth square number
 - the difference between the fifth cube number and the fifth square number
 - the eighth square number multiplied by the third square number
 - the fourth cube number multiplied by the fourth square number.
- 10
- Ricky thinks of an odd number that is a factor of 12. The number is not 1. What number is Ricky thinking of?
 - Doris thinks of an even number that is a factor of 28. The number is not 2. What number is Doris thinking of?
 - Joe thinks of an odd number that is a multiple of 5. The number is between 8 and 22. What number is Joe thinking of?
 - Samir thinks of a square number between 30 and 40. What number is Samir thinking of?
 - Sanjit thinks of a cube number between 20 and 40. What number is Sanjit thinking of?
- 11 Here are the first nine square numbers
- 1 4 9 16 25 36 49 64 81
- Write each of the numbers below as the sum of two square numbers taken from the list above.
- | | | | | |
|-------------|-------------|-------------|-------------|-------------|
| a 5 | b 8 | c 13 | d 34 | e 20 |
| f 29 | g 61 | h 80 | i 90 | j 97 |

1.8 Order of operations

A calculation can contain more than one operation.

The operations that could be in a calculation are addition (+), subtraction (−), multiplication (×) and division (÷).

An expression like $2 + 3 \times 4$ can be worked out in two different ways.

$$2 + 3 = 5$$

$$5 \times 4 = 20$$

OR

$$3 \times 4 = 12$$

$$2 + 12 = 14$$

We use a set of rules to tell us which operations to do first so that so that everyone gets the same answer.

- If **brackets** appear, work out the value of the expression in the brackets first.
- If there are no brackets, do **multiplication and division before addition and subtraction** no matter where they come in an expression.

The rules can be remembered using the word **BIDMAS** which gives the order in which the operations are carried out.

B Brackets

(Indices) (Indices are explained in Chapter 20)

D Division

M Multiplication

A Addition

S Subtraction

- If an expression has only addition and subtraction then work from left to right to work it out.

Example 21

a Work out $4 + 24 \div 2 + 4$

b Work out $20 - 8 + 5$

Solution 21

a $24 \div 2 = 12$

$$4 + 12 + 4 = 20$$

b $20 - 8 = 12$

$$12 + 5 = 17$$

Do the division first.

Then work from left to right.

Start at the left with the subtraction, as the expression has only addition and subtraction.

Then do the addition.

Example 22

Work out $(6 + 4) \times 5$

Solution 22

$$6 + 4 = 10$$

$$10 \times 5 = 50$$

Work out the brackets first.

Then do the multiplication.

If the numbers are large then the expression can be worked out using a calculator. Calculators are either 'scientific' or 'non-scientific'. If the calculator is scientific the expression can be entered in the order it is written. If the calculator is non-scientific, each part of the expression must be worked out and written down before the calculation can be completed.

You can test whether your calculator is a scientific one or not by working out $2 + 3 \times 4$. If it is a scientific calculator you should get the answer 14.

Example 23

Work out $\frac{63 \times 36}{23 + 31}$

Solution 23

$$63 \times 36 = 2268$$

Work out the top of the expression and write the answer down.

$$23 + 31 = 54$$

Work out the bottom of the expression and write the answer down.

$$\text{Work out } 2268 \div 54 = 42$$

Writing one number over another means dividing the top by the bottom.



Exercise 1N

1 Work out

a $3 \times 5 + 4$

b $4 \times 4 - 4$

c $3 + 5 \times 4$

d $5 + 3 \times 6$

e $20 - 2 \times 7$

f $16 - 3 \times 5$

g $37 - 4 \times 5$

h $38 - 5 \times 6$

i $63 - 7 \times 8$

j $54 + 32 \times 2$

2 Work out

a $17 - 5 - 3$

b $20 - 13 - 5$

c $23 - 5 + 8$

d $25 - 13 + 5$

e $32 + 8 - 15$

f $29 + 18 - 20$

g $24 - 24 + 12$

3 Work out

a $8 \div 2 + 2$

b $16 \div 4 + 8$

c $20 + 8 \div 4$

d $32 + 8 \div 4$

e $36 + 8 \div 2$

4 Work out

a $4 \times (6 + 2)$

b $5 \times (12 - 4)$

c $(3 + 7) \times 12$

d $(7 - 5) \times 9$

e $(6 - 3) - 3$

f $6 - (3 - 3)$

g $(8 + 4) - 2$

h $8 + (4 - 2)$

5 Work out

a $(6 + 4) \div 2$

b $(15 - 6) \div 3$

c $20 \div (10 - 5)$

d $36 \div (12 - 10)$

e $24 \div (6 - 4)$

f $30 \div (15 - 10)$

g $640 \div (20 - 10)$

6 Add brackets so that each answer is correct.

a $8 + 2 \times 3 = 30$

b $4 \times 5 + 6 = 44$

c $20 - 2 \times 2 = 36$

d $18 + 2 \times 4 = 80$

e $14 - 3 \times 3 = 33$

f $20 \div 2 + 3 = 4$

g $30 + 4 \div 2 = 17$

h $20 - 2 \div 2 = 9$

i $40 - 10 \div 2 = 15$

j $48 \div 4 - 2 = 24$

k $16 - 8 - 6 = 14$

l $24 - 4 + 6 = 14$

m $36 \div 6 \div 3 = 18$

n $24 \div 12 \div 2 = 4$

o $45 \div 5 \div 5 = 45$



7 Use a calculator to work out the following

a $(65 + 81) \times 47$

b $(57 + 234) \times 46$

c $45 + 56 \times 13$

d $1234 - 24 \times 36$

e $1728 \div 18 + 54$

f $432 \div 18 + 6$

g $225 + 5280 \div 15$

h $(645 - 258) \div 3$

8 Use a calculator to work out the following

a $(234 + 123) \times (39 + 56)$

b $(39 - 18) \times (638 - 239)$

c $(248 + 169) \times (102 - 67)$

d $(24 \times 33) \div (346 - 322)$

e $(672 + 368) \div (201 - 196)$

f $\frac{36 \times 24}{16}$

g $\frac{48 \times 66}{36}$

h $\frac{726}{11 \times 2}$

i $\frac{1792}{56 \times 16}$

j $\frac{1452}{182 - 116}$

k $\frac{48 \times 54}{321 - 249}$

l $\frac{169 + 273}{721 - 695}$

m $\frac{14\,820 - 7530}{135}$

1.9 Writing a number as a product of its prime factors

A **prime number** is a whole number which has only two factors.

2 is a prime number because 1 and 2 are its only factors.

3 is also a prime number because 1 and 3 are its only factors.

1 is **not** a prime number, because its only factor is 1

9 is **not** a prime number because it has more than two factors 1, 3 and 9

Here are the first eight prime numbers. The list continues for ever.

2 3 5 7 11 13 17 19

Example 24

Which of the following numbers are prime numbers?

21 23 25 27 29

Solution 24

$21 = 7 \times 3$ and 1×21 $25 = 5 \times 5$ and 25×1 $27 = 9 \times 3$ and 1×27

so they have more than two factors.

23 and 29 are the prime numbers in the list.

Prime numbers are the building blocks of all of the whole numbers because all whole numbers are either prime or can be written as a product of prime numbers.

For example, 15 is not prime, but can be written as the product 3×5

3 and 5 are prime numbers which are factors of 15 and so are called the **prime factors** of 15

12 is not prime, but can be written as the product of its prime factors.

$$12 = 2 \times 2 \times 3$$

Example 25

Write 18 as the product of its prime factors.

Solution 25

$$18 = 2 \times 9$$

(2×9 is not the answer, as 9 is not a prime number.)

$$18 = 2 \times 3 \times 3$$

Writing large numbers as the product of prime factors

Divide a large number by one of its prime factors to produce a smaller number.

Repeat this with the smaller number again and again until all that is left is a prime number.

To write 72 as the product of its prime factors, look for the smallest prime factor of 72

That is 2

Divide 72 by 2

$$72 \div 2 = 36$$

2

72

Repeat with the new number (36).

$$36 \div 2 = 18$$

2

36

Repeat until a number is reached which does not have 2 as a factor.

$$18 \div 2 = 9 \quad 2 \text{ is not a factor of } 9$$

2

18

Pick the next prime number (3) to see if it is a factor of 9

$$9 \div 3 = 3$$

3

9

Repeat with the new number (3).

$$3 \div 3 = 1 \text{ so the process is complete}$$

3

3

Then the final answer is $72 = 2 \times 2 \times 2 \times 3 \times 3$

1

Example 26

Write 120 as a product of its prime factors

Solution 26

120	60	30	15	5
	$\div 2$	$\div 2$	$\div 2$	$\div 3$

$$120 = 2 \times 2 \times 2 \times 3 \times 5$$

1.10 Highest common factors and lowest common multiples

The **highest common factor** (HCF) of two numbers is the largest number which is a factor of both of the numbers.

The highest common factor (HCF) of 8 and 12 is 4 as it is the biggest number that is a factor of 8 and of 12

For larger numbers, it is useful to list the factors of each number and pick out the highest number.

Example 27

Find the highest common factor (HCF) of 24 and 36

Solution 27

The factors of 24 are 1, 2, 3, 4, 6, 8, 12 and 24

The factors of 36 are 1, 2, 3, 4, 6, 9, 12, 18 and 36

The numbers which appear in both lists are 1, 2, 3, 4, 6 and 12

So the highest common factor of 24 and 36 is 12.

The **lowest common multiple** (LCM) of two numbers is the smallest number which is a multiple of both numbers.

The lowest common multiple of 8 and 12 is 24, as it is the smallest number which has 8 and 12 as factors.

For larger numbers, it is useful to list the multiples of each number and then to pick out the smallest number that appears in both lists.

Example 28

Find the lowest common multiple (LCM) of 15 and 20

Solution 28

The first few multiples of 15 are 15, 30, 45, 60, 75 and so on.


The first few multiples of 20 are 20, 40, 60, 80, 100 and so on.

The lowest number which appears in both lists is 60

So the lowest common multiple of 15 and 20 is 60

Exercise 10

- 1 Find the two prime numbers between 30 and 40
- 2 Find two prime numbers which have a sum of 7
- 3 Find two prime numbers which have a product of 14
- 4 Find two prime numbers which are factors of 20

- 5 Find two prime numbers which are factors of 24
- 6 Find two prime numbers which are factors of 33
- 7 Write the following numbers as a product of two prime factors.
a 10 **b** 15 **c** 21 **d** 22 **e** 33 **f** 39
- 8 Which of the following show a number written correctly as a product of prime factors?
a $12 = 2 \times 2 \times 3$ **b** $19 = 2 \times 9$ **c** $20 = 2 + 2 + 5$
d $16 = 2 \times 2 \times 2 \times 2$ **e** $54 = 2 \times 2 \times 2 \times 7$
- 9 Write the following numbers as a products of their prime factors.
a 30 **b** 42 **c** 48 **d** 36 **e** 60 **f** 63
g 54 **h** 80 **i** 76 **j** 88 **k** 68 **l** 66
- 10 Find the highest common factor (HCF) of the following pairs of numbers.
a 12 and 14 **b** 6 and 9 **c** 6 and 8 **d** 8 and 10 **e** 6 and 10
- 11 Find the highest common factor (HCF) of the following pairs of numbers.
a 12 and 18 **b** 10 and 15 **c** 16 and 20 **d** 18 and 24 **e** 24 and 30
- 12 Find the lowest common multiple (LCM) of the following pairs of numbers.
a 6 and 8 **b** 6 and 9 **c** 6 and 10 **d** 9 and 12 **e** 10 and 15
- 13 Find the lowest common multiple (LCM) of the following pairs of numbers
a 12 and 15 **b** 12 and 24 **c** 12 and 18 **d** 18 and 24 **e** 20 and 24
- 14 **a** Find the number of multiples of 3 that are less than 100
b Find the number of multiples of 5 that are less than 100
- 15 Fred has two flashing lamps. The first lamp flashes every 4 seconds. The second lamp flashes every 6 seconds. Both lamps start flashing together.
a After how many seconds will they flash together again?
b How many times in a minute will they flash together?
- 16 As a product of its prime factors, $360 = 2 \times 2 \times 2 \times 3 \times 3 \times 5$
 Write 720 as a product of its prime factors.
-  17 2, 3, 5, 7, 21, 22, 24
a factors of 288 **b** factors of 550?
- 18 Write each of the numbers below as a product of its prime factors.
a 105 **b** 539 **c** 231 **d** 847 **e** 1001
- 19 Find the lowest common multiple of the following pairs of numbers.
a 24 and 30 **b** 27 and 36 **c** 28 and 35 **d** 36 and 42 **e** 54 and 72

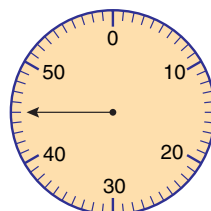
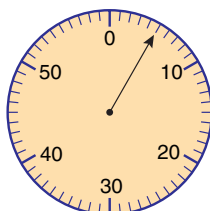
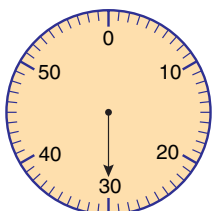
Chapter summary

You should know

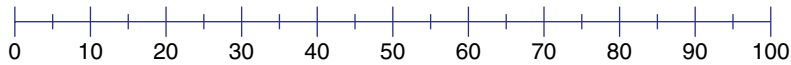
- ★ How to write numbers using figures and words
- ★ The **place value** of figures in a number
- ★ How to read and write numbers on a number line
- ★ How to add and subtract numbers on a number line
- ★ How to round numbers to the nearest 10, 100 or 1000
- ★ How to use mental methods to add, subtract, multiply and divide whole numbers
- ★ The terms **sum**, **difference** and **product**
- ★ How to use suitable non-calculator methods to add, subtract, multiply and divide whole numbers
- ★ How to use suitable methods to check calculations
- ★ How to use a calculator to add, subtract, multiply and divide whole numbers
- ★ The terms **factor** and **multiple**
- ★ The terms **square number** and **cube number**
- ★ How to work out the value of an expression which may contain brackets and more than one type of operation
- ★ How to write a number as a product of its **prime factors**
- ★ How to find the **highest common factor (HCF)** of two numbers
- ★ How to find the **lowest common multiple (LCM)** of two numbers

Chapter 1 review questions

- 1 Write these numbers in figures
 - a one thousand, eight hundred and twenty four
 - b three thousand, six hundred and fifty two
 - c three hundred and two
 - d eight thousand and fifty two
 - e Four thousand and seven
- 2 Write these numbers in words
 - a 452
 - b 6372
 - c 4056
 - d 7003
 - e 12 053
- 3 What numbers are displayed on these dials?



- 4 Copy the number line. Mark the numbers shown below on the number line with an arrow

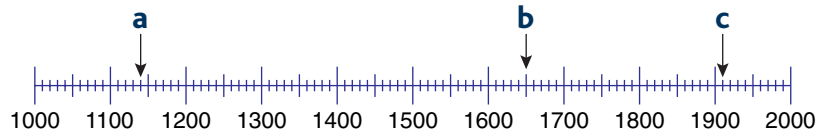


a 60

b 85

c 5

- 5 What numbers are shown by arrows **a**, **b** and **c** on the number line?



- 6 Work out the answers to these mentally

a $25 + 35$

b $38 + 62$

c $99 - 67$

d $100 - 45$

e $48 + 34$

f $36 + 49$

g $65 - 38$

h $67 - 59$

i $36 + 85$

j $25 + 15 + 16$

k $36 + 95$

l $56 - 29$

m $36 + 88$

n $59 + 85$

o $90 - 64$

p $180 - 56$

q $90 - 48$

r $360 - 248$

s $180 - 34$

t $90 - 57$

- 7 Work out the answers to these using pen and paper

a $687 + 115 + 2401$

b $345 - 86$

c 67×7

d 347×8

e $64 \div 4$

f $248 \div 5$

g 46×46

h 34×56

i 47×34

j $256 \div 23$

k $879 \div 35$

- 8 a Round each of these numbers to the nearest 10

i 439

ii 599

iii 945

iv 749

v 4145

vi 996

vii 7478

viii 3256

ix 1004

x 10 005

- b Round each of these numbers to the nearest 100

i 439

ii 599

iii 945

iv 749

v 4145

vi 996

vii 7478

viii 3256

ix 1004

x 10 005

- c Round off each of these numbers to the nearest 1000

i 3987

ii 599

iii 945

iv 749

v 4145

vi 996

vii 7478

viii 3256

ix 1004

x 10 005

- 9 Check whether the following calculations are correct using rounding.

a $36 \times 32 = 1152$

b $24 \times 39 = 2232$

c $64 \times 128 = 8192$

d $54 \times 219 = 15\,714$

e The twenty ninth square number is 58

- 10 Check whether the following calculations are correct using the inverse operations.

a $1728 \div 72 = 24$

b $5280 \div 88 = 60$

c $48 \times 54 = 4536$

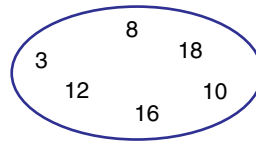
d $128 \times 66 = 8484$

e $127 \times 81 = 10287$

- 11 a Fred earns £84 for each car he sells. In January he sold 17 cars. How much did he earn in January?
- b A crate holds 36 bottles. How many crates are needed to hold 1950 bottles?
- c 1284 people watched a football match. They each paid £18. How much did they pay altogether?
- d 56 adults and 68 children went to a concert. Each adult paid £7 and each child paid £4. Find the total amount paid.

- e A lorry holds 485 crates. Each crate holds 48 bottles. What is the total number of bottles that the lorry can hold?
- f A school has 48 classrooms. Each classroom has 32 chairs. How many chairs are in the school?

12 From the numbers in the oval



- a Write down a factor of 20
- b Write down a multiple of 9
- c Write down a square number.
- d Write down a cube number.
- e Write down two numbers which have a difference of 6

13 Work out

- a $6 + 4 \times 3$ b $17 - 2 \times 2$ c $64 \div (2 + 6)$
- d $(5 + 6) \times (10 - 2)$ e $63 - 48 - 15$

14 Use a calculator to work out the following

- a $128 + 56 \times 48$ b $(47 + 58) \times 125$ c $\frac{36 \times 55}{45}$
- d $\frac{3456}{12 \times 16}$ e $\frac{9408}{14 \times 12}$

15 Chocolates are packed into boxes of 32.
How many boxes can be packed using 2500 chocolates?

16 Here is a menu.

Jo buys one tea, two coffees,
two sandwiches and three cakes.
Work out the total cost.



17 It costs 38p to make a colour photocopy.

Work out the cost of 345 colour photocopies. Give your answer in pounds.

18 54 327 people watched a football match.

- a Write 54 327 to the nearest thousand
- b Write down the value of the 5 in the number 54 327 (1387 June 2003)

19 Lisa has £10 to buy some stamps. Each stamp costs 28p
Lisa buys the greatest number of stamps she can with the £10

- a Work out how many stamps Lisa buys.
- b Work out how much change she should get. (1385 June 2001)

20 a Write the number thirteen thousand, five hundred and ninety one in figures.

- b Write down the value of the 7 in 547 682
- c Write down 8183 correct to the nearest hundred. (5540 June 2005)

21 a Express the following numbers as products of their prime factors i 60 ii 96

- b Find the highest common factor of 60 and 96
- c Work out the lowest common multiple of 60 and 96 (June 2003)