1

In your exercise book, write these numbers as the sum of hundreds, tens, units, etc.

a) 135 b) 309 c) 3245 d) 9280

a) $1 \times 100 + 3 \times 10 + 5 \times 1$ b) $3 \times 100 + 0 \times 10 + 9 \times 1$

c) $3 \times 1000 + 2 \times 100 + 4 \times 10 + 5 \times 1$ d) $9 \times 1000 + 2 \times 100 + 8 \times 10 + 0 \times 1$

2

In your exercise book, write these numbers in words.

a) 234 b) 1740 c) 2009 d) 3000

a) Two hundred and thirty four b) One thousand seven hundred and forty

c) Two thousand and nine d) Three thousand

e) 4097 f) 8016 g) 9999 h) 7705

e) Four thousand and ninety seven f) Eight thousand and sixteen

g) Nine thousand nine hundred and ninety nine h) Seven thousand seven hundred and five

3

a) Write these numbers as digits.

i) Five thousand, three hundred and four = 5304

ii) Three thousand, five hundred and four = 3504

iii) Four thousand and five = 4005

iv) 5 thousands + 2 hundreds + 3 tens + 4 units = 5234

v) 4 thousands + 7 tens + 2 units = 4072

vi) 23 units + 50 hundreds = 5023

vii) 3 hundreds + 52 tens + 6 units = 826

viii) 5 thousands + 2 hundreds + 410 units = 5610

b) List them in increasing order.

826 < 3504 < 4005 < 4072 < 5023 < 5234 < 5304 < 5610

4

Write these numbers in the place-value table.

a)

	TTh 10 000	Th 1000	H 100	T 10	U 1
5409		5	4	0	9
9521		9	5	2	1
1935		1	9	3	5
2050		2	0	5	0
5499		5	4	9	9
5499 + 1		5	5	0	0
5499 + 2		5	5	0	1

b)

	TTh 10 000	Th 1000	H 100	T 10	U 1
35				3	5
10 times 35			3	5	0
100 times 35		3	5	0	0
1000 times 35	3	5	0	0	0

5

Write the next two terms in the sequence.

a) 413, 418, 423, 428, . 433, , 438. . b) 1200, 1100, 1000, . 900, , 800. .

1

a) Write these numbers in words.

i) 1240 One thousand two hundred and forty

ii) 324 Three hundred and twenty four

iii) 2001 Two thousand and one

iv) 5430 Five thousand four hundred and thirty

v) 10101 Ten thousand one hundred and one

vi) 1027 One thousand and twenty seven

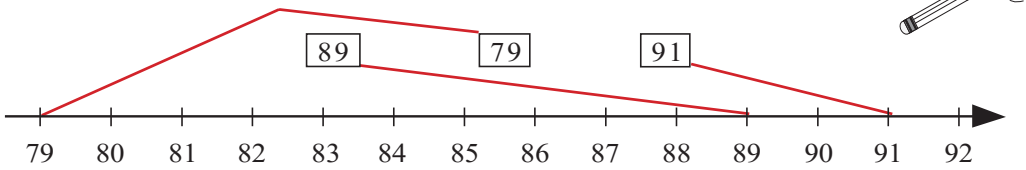
b) List them in increasing order.

. . . 324 < 1027 < 1240 < 2001 < 5430 < 10101 . . . . . .

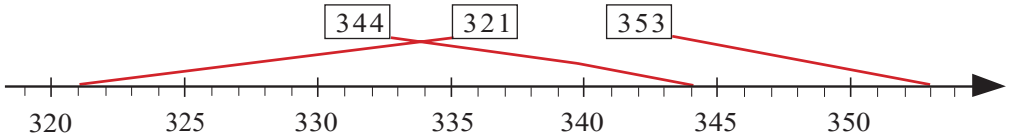
2

Join up each number to the corresponding point on the number line.

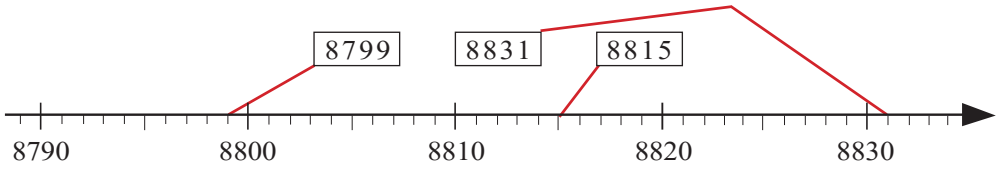
a)



b)



c)



3

a) Follow the pattern and complete the table.

b) Write a ≈ sign nearest the correct rounding to the nearest whole ten.

Next smaller ten	Number	Next greater ten
0	≈ 3	10
80	86 ≈	90
390	≈ 392	400
4530	4535 ≈	4540
10 320	≈ 10324	10 330

4

Round each number to the nearest whole ten and nearest whole hundred.

a) 299 ≈ 300 ≈ 300

b) 4604 ≈ 4600 ≈ 4600

c) 2875 ≈ 2880 ≈ 2900

d) 9048 ≈ 9050 ≈ 9000

5

Complete the statements.

a) 345 [<] 410

b) 410 – 345 = [65]

c) 345 + [65] = 410

d) 1320 [>] 1120

e) 1320 – 1120 = [200]

f) 1120 + [200] = 1320

g) 7479 < [ ] < 7485 [ ] : . . 7480, 7481, 7482, 7483, 7484 . . . . . .

1

Fill in the missing numbers.

a) 23 × 10 = 230 b) 75 × 100 = 7500 c) 27 × 1000 = 27 000

120 × 10 = 1200 22 × 100 = 2200 75 × 100 = 7500

445 × 10 = 4450 120 × 100 = 12 000 85 × 100 = 8500

2

Fill in the missing numbers and signs.

a) 840 ÷ 10 = 84 b) 7200 ÷ 100 = 72 c) 9600 ÷ 100 = 96

d) 10 000 ÷ 100 = 100 e) 1720 ÷ 10 = 172 f) 850 x 10 = 8500

g) 8500 ÷ 100 = 85 h) 34 × 1000 = 34 000

3

Write multiplications and divisions about the tables.

a)

H Th	T Th	Th	H	T	U
				5	3
			5	3	0
		5	3	0	0
	5	3	0	0	0
5	3	0	0	0	0

53 × 10 = 530

53 × 100 = 5300

53 x 1000 = 53 000

530 x 10 = 5300

5300 x 10 = 53 000

etc.

b)

H Th	T Th	Th	H	T	U
8	0	7	0	0	0
	8	0	7	0	0
		8	0	7	0
			8	0	7

807 000 ÷ 10 = 80 700

80 700 ÷ 100 = 807

807 000 ÷ 1000 = 807

80 700 ÷ 10 = 8070

8070 ÷ 10 = 807

4

You have these number cards. 2 3 4 0 0 0

Use them to make, where possible, two different 6-digit numbers which are:

e.g.

a) divisible by 10: 300 240 200 430

b) divisible by 10, but not by 100: 300 420 420 030

c) divisible by 100, but not by 10: not possible

d) not divisible by 10: 300 042 300 024

1

Write the units of measure that you know in the correct place in the table.

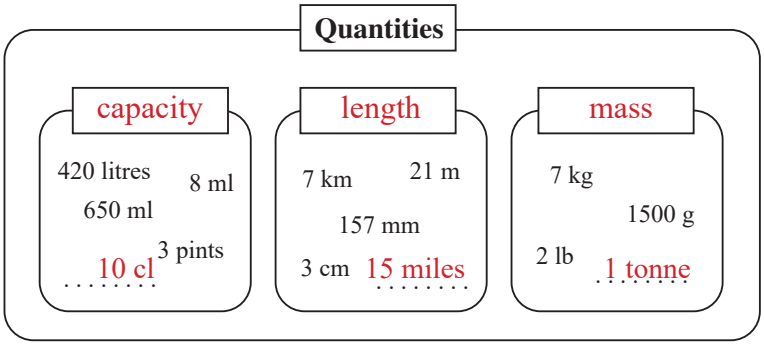
Number of times, or the fraction of, the basic unit	1000	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
Units of length	km			metre (m)		cm	mm
Units of mass	kg			gram (g)			
Units of capacity				litre (ℓ)		cl	ml

2

a) Write a label for each set.

b) Add a quantity of your own to each set.

e.g.



3

Convert the quantities.

a) 3 km = 3000 m

b) 12 km = 12 000 m

c) 5 and a half km = 5500 m

d) 17 m 80 cm = 1780 cm

e) 3 half metres = 150 cm

f) 3 quarters of a metre = 75 cm

g) 5 m = 5000 mm

h) 32 m 4 cm = 32 040 mm

i) 2 fifths of a metre = 400 mm

j) 3000 ml = 3 litres

k) 2500 ml = 2.5 litres

l) 2500 cl = 25 litres

m) 10 000 g = 10 kg

n) 3500 g = 3.5 kg

4

Fill in the missing items.

a) 4 litres = 4000 ml = 400 cl

b) 31 kg = 31 000 g

c) 70 m = 7000 cm = 70 000 mm

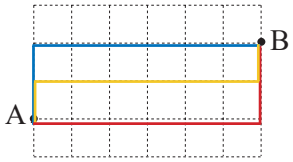
d) 1300 cm = 13 m = 13 000 mm

e) 3 000 000 g = 3000 kg = 3 tonnes

f) 5000 ml ≠ [ ] m ≠ [ ] g (!)

not possible

1



a) How many units long is the shortest route from A to B along the grid lines? **8**

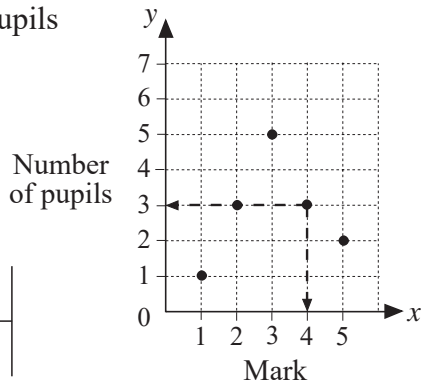
b) How many such routes can you find? **28**

2

The graph shows the marks scored by a class of 14 pupils in a test which had 5 marks in total.

For example, 3 pupils scored 4 marks, or 4 marks were scored by 3 pupils.

So this data point has coordinates (4, 3).



a) Complete the table.

Mark	1	2	3	4	5
Number of pupils	1	3	5	3	2

b) i) Which mark did most pupils score? This is the **mode**. **3**

ii) How many pupils scored it? **5**

c) List the marks of every pupil in increasing order in your exercise book.

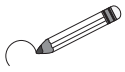
d) Calculate the **mean** in your exercise book and write it here. $\frac{44}{14} = \frac{22}{7} = 3\frac{1}{7}$

1, 2, 2, 2, 3, 3, 3, 3, 3, 4, 4, 4, 5, 5

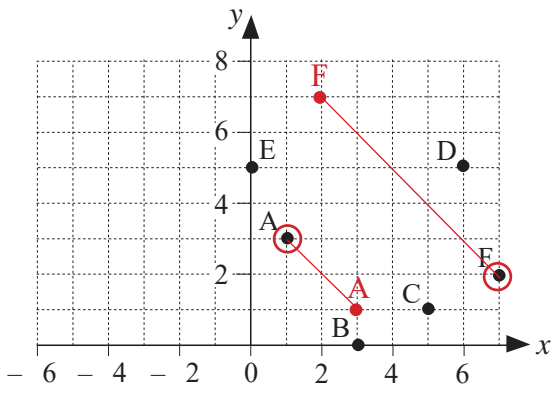
3

There are two mistakes in this graph.

Circle the incorrect points and draw them again in the correct position.



A (3, 1)
B (3, 0)
C (5, 1)
D (6, 5)
E (0, 5)
F (2, 7)



4

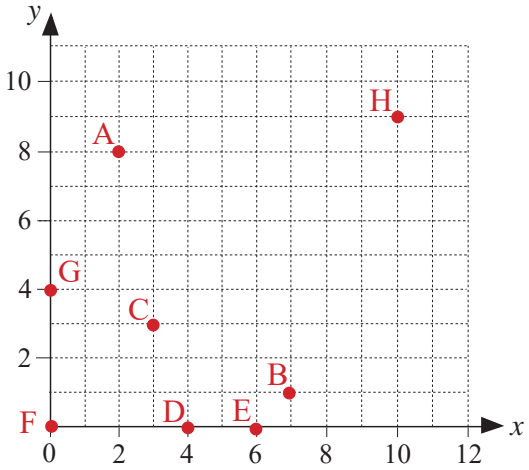
Mark these points with dots on the graph.

A (2, 8); B (7, 1); C (3, 3);

D (4, 0); E (6, 0); F (0, 0);

(0, 4) G (4 rounded to the nearest 10, 40 ÷ 10)

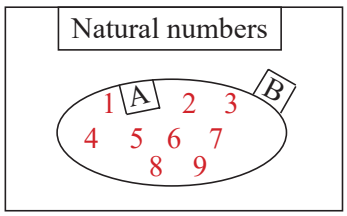
(10, 9) H (13 rounded to the nearest 10, 900 ÷ 100)



1

The base set contains the **natural** numbers.

Set A contains numbers less than 10.



a) List the elements of *Set A*.

$A = \{ 1, 2, 3, 4, 5, 6, 7, 8, 9 \}$

b) If the number of elements in *Set A* is n, complete this statement. n [<] 10

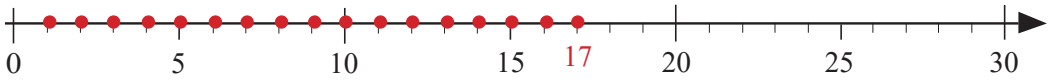
c) List the elements in *Set B*. $B = \{ 10, 11, 12, 13, 14, \ldots$, infinity$\}$

$B: = n > 10$

2

The base set is the set of **natural** numbers. Write an inequality about x, y and z using $<$, $>$, $\leq$ or $\geq$ and show it on the number line.

a) x is less than or equal to 17. $x \leq 17$



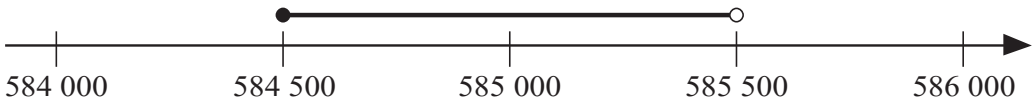
b) y is less than 8. $y < 8$

c) z is at least 7 and at most 10. $7 \leq z \leq 10$

3

If the population of a country, rounded to the nearest 1000, is 585 000, then it means:

584 500 ≤ population < 585 500



The **actual** population is a natural number somewhere on the segment shown.

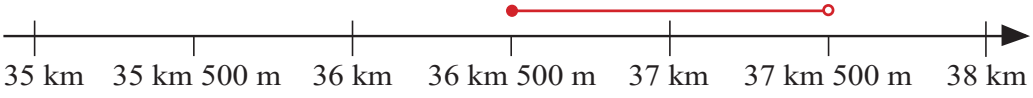
a) Answer this question by writing an inequality.

The length of a room was measured as 530 cm, rounded to the nearest 10 cm. What could the actual measurement be?

525 ≤ length < 535

b) The distance from John's house to his work is 37 km, rounded to the nearest km. What could the actual distance be? Show it on the number line.

36 km 500 m ≤ distance < 37 km 500 m



1 Write an operation for each problem and do the calculation.

a) 15 girls and 16 boys went on a trip. How many children went on the trip?

15 + 16 = 31

b) The school organised two trips. 27 pupils went to Dartmoor, 9 less than those who went to Exmoor. How many pupils went to Exmoor?

27 + 9 = 36

2 Do these calculations in your exercise book and write only the answers here.

a) 87 – 22 = 65 b) 103 + 68 = 171 c) 122 – 48 = 74

d) 4013 + 482 = 4495 e) 500 + 600 + 900 = 2000

f) 3000 – 570 = 2430 g) 3072 + 8318 + 686 + 1324 = 13 400

3 Do these calcuations in your exercise book and write only the answers here.

a) 4400 + 600 + 960 + 1040 = 7000 b) 2050 – 580 = 1470

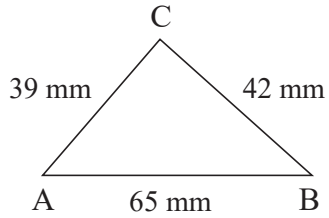
c) 7305 + 95 + 551 + 1049 = 9000 d) 6000 – 3700 = 2300

e) 2600 + 2040 + 25 + 375 = 5040 f) 3000 – 570 = 2430

g) 3072 + 8218 + 686 + 1324 = 13 300 h) 1660 – 760 = 900

4 Calculate the perimeter of each polygon in your exercise book. Write the answer here.

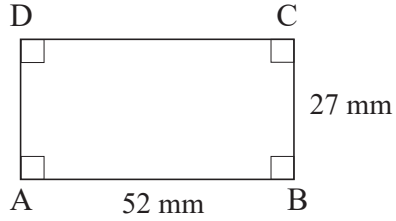
a)



Not drawn to scale!

P = 146 mm

b)



P = 158 mm

5 Ann has £758, Betty has £1439 and Carol has £549. How much do they have altogether?

Estimate by rounding to the nearest £100, write the amounts in the place-value table, do the calculation and write the answer in a sentence.

E: 800 + 1400 + 500 = 2700

Answer: They have £2746 altogether.

	Th	H	T	U
A		7	5	8
B	1	4	3	9
C		5	4	9
Total	2	7	4	6

1

Estimate first by rounding to the nearest 100, then calculate.

100 + 300 + 400 = 800 1500 + 3800 + 2400 = 7700

a) *E:* 800 b) *E:* 7700 c) *E:* 4700 d) *E:* 24 300

	1	4	2
	3	1	3
+	4	4	1
	8	9	6

	1	5	2	6
	3	8	0	4
+	2	4	3	7
	7	7	6	7

		4	5	3
		7	0	9
+	3	4	5	6
	4	6	1	8

		3	5	6	7
				3	4
	1	1	5	8	9
+		9	0	7	8
	2	4	2	6	8

2

Write each addition in column form, then do the calculation.

a) 345 + 276 + 516 + 1018

		3	4	5
		2	7	6
		5	1	6
+	1	0	1	8
	2	1	5	5

b) 2305 + 4076 + 291 + 1000

	2	3	0	5
	4	0	7	6
		2	9	1
+	1	0	0	0
	7	6	7	2

c) 5077 + 9246 + 260 + 8705

	5	0	7	7
	9	2	4	6
		2	6	0
+	8	7	0	5
2	3	2	8	8

d) 1010 + 8 + 26 + 3004

	1	0	1	0
				8
			2	6
+	3	0	0	4
	4	0	4	8

e) Seven thousand, three hundred and fifteen
+ eight hundred and ninety-one
+ three hundred + fifty-five

	7	3	1	5
		8	9	1
+		3	0	0
			5	5
	8	5	6	1

3

Estimate first by rounding to the nearest 100, then do the calculation.

75 000 – 2900 = 72 100

a) *E:* 100 b) *E:* 3800 c) *E:* 72 100 d) *E:* 7000

	5	6	7
–	4	5	6
	1	1	1

	4	4	5	3
–		7	0	9
	3	7	4	4

	7	5	0	3	8
–		2	8	9	0
	7	2	1	4	8

	1	3	0	6	7
–		6	0	9	4
		6	9	7	3

4

Write each subtraction in column form, then do the calculation.

a) 5678 – 2451

	5	6	7	8
–	2	4	5	1
	3	2	2	7

b) 8636 – 3452

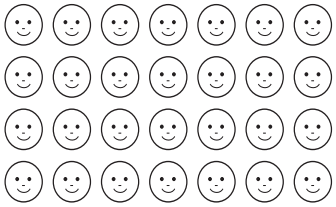
	8	6	3	6
–	3	4	5	2
	5	1	8	4

c) the difference between 8675 and 3456

	8	6	7	5
–	3	4	5	6
	5	2	1	9

1

The pupils in a class are sitting in this formation. How many pupils are in the class?



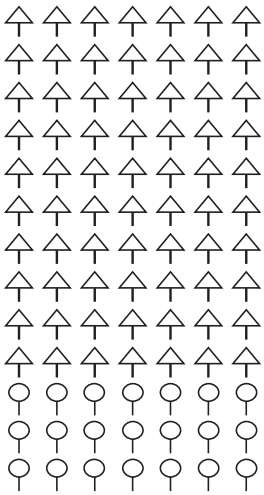
Write it as an addition and a multiplication in two ways.

7 + . 7 + 7 + 7 . . . . . = 4 × 7 = 28

4 + . 4 + 4 + 4 + 4 + 4 + 4 . . . . . = 7 × 4 = 28

Complete this sentence. The factors or terms of a multiplication are inter-changeable.

2



A farmer planted 10 rows of peach trees and 3 rows of cherry trees in his orchard. He planted 7 trees in each row. How many trees did he plant altogether?

Write different plans for calculating the answer.

e.g. $10 \times 7 = 70$

$3 \times 7 = 21$ +

91 trees

3

Complete the multiplication table.

×	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6	9	12	15	18	21	24	27	30	33	36
4	0	4	8	12	16	20	24	28	32	36	40	44	48
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12	18	24	30	36	42	48	54	60	66	72
7	0	7	14	21	28	35	42	49	56	63	70	77	84
8	0	8	16	24	32	40	48	56	64	72	80	88	96
9	0	9	18	27	36	45	54	63	72	81	90	99	108
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110	121	132
12	0	12	24	36	48	60	72	84	96	108	120	132	144

4

Do these multiplications in a clever way in your exercise book.

e.g.

a) $3 \times 4 \times 25$ b) $5 \times 63 \times 20$ c) $63 \times 77 \times 0$ d) $1 \times 2 \times 4 \times 8$

a) $= 4 \times 25 \times 3 = 100 \times 3 = 300$ b) $= 5 \times 20 \times 63 = 100 \times 63 = 6300$ c) $= 0$

d) $= 1 \times 2 \times 4 \times 8 = 8 \times 8 = 64$

e) $1 \times 2 \times 3 \times 4 \times 5 \times 6$ f) $5 \times 2 \times 7 \times 2 \times 7 \times 5$ g) $2 \times 8 \times 125 \times 4$

e) $= 3 \times 4 \times 5 \times 12 = 60 \times 12 = 600 + 120 = 720$ f) $= 5 \times 2 \times 5 \times 2 \times 49 = 100 \times 49 = 4900$

g) $= 8 \times 4 \times 250 = 8 \times 1000 = 8000$

1

Do these calculations in a clever way.

e.g.

a) $47 \times 6 =$ $50 \times 6 - 3 \times 6 = 300 - 18 = 282$

b) $31 \times 19 =$ $31 \times 20 - 31 = 620 - 31 = 589$

c) $82 \times 13 =$ $82 \times 10 + 82 \times 3 = 820 + 246 = 1066$

d) $69 \times 20 =$ $70 \times 20 - 20 = 1400 - 20 = 1380$

e) $50 \times 4 \times 7 =$ $100 \times 2 \times 7 = 1400$

2

Write plans and do the calculations.

An intercity express train is travelling at an average speed of 110 km per hour.
A local train is travelling at an average speed of 70 km per hour.
Both trains take 7 hours to complete their journeys.

a) What distance do the two trains travel altogether?

$(110 + 70) \times 7 = 180 \times 7 = 700 + 560 = 1260$

The trains travel 1260 km altogether.

b) How much further does the intercity express train travel?

$(110 - 70) \times 7 = 40 \times 7 = 280$

The intercity express train travels 280 km further.

3

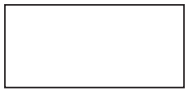
Calculate the perimeter and area of these polygons. (They are not drawn to scale.)

a)

$P =$ 44 cm $\quad 11 \times 4 = 44$

$A =$ 121 cm^2 $\quad 11 \times 11 = 121$

b)



$P =$ 114 m $\quad (12 + 45) \times 2 = 114$

$A =$ 540 m^2 $\quad 12 \times 45 = 540$

4

In this table, row *a* shows the length of a side of different squares and row *A* shows the area of the same squares.

Complete the table and write the rule.

a	1	2	3	4	5	6	7	8	9	10	11	12	13
A	1	4	9	16	25	36	49	64	81	100	121	144	169

Rule: $A = a \times a \ (= a^2)$

1

Pete and Sue bought 5 bottles of juice and took back 5 empty bottles.

One bottle of juice cost 86 p but they got 6 p back for every empty bottle they returned.

Pete and Sue calculated how much they spent in different ways. Show how they did it.

Pete: $(86 - 6) \times 5 = 400$

Spent 400 p

= £4.00

Sue: $86 \times 5 - 6 \times 5 = 430 - 30$

$= 400$

Spent 400 p = £4.00

2

Calculate 327×6 in the place-value tables in two different ways.

Th	H	T	U	
	3	2	7	× 6
		4	2	
	1	2	0	
1	8	0	0	
1	9	6	2	

Th	H	T	U	
	3	2	7	× 6
1	9	6	2	

3

Calculate 43×23 in the place-value tables in different ways.

a)

	H	T	U	
	8	6	0	← 43 × 20
+	1	2	9	← 43 × 3
	9	8	9	

b)

H	T	U	×	T	U
	4	3		2	3
		9			
1	2	0			
	6	0			
+ 8	0	0			
9	8	9			

c)

H	T	U	×	T	U
	4	3		2	3
1	2	9			
+ 8	6	0			
9	8	9			

4

Calculate these products in any way you wish.

a)	b)	c)	d)
$70 \times 4 = 280$	$82 \times 10 = 820$	$68 \times 100 = 6800$	$25 \times 8 = 200$
$75 \times 4 = 300$	$82 \times 9 = 738$	$68 \times 99 = 6732$	$250 \times 8 = 2000$
$75 \times 6 = 450$	$82 \times 5 = 410$	$68 \times 90 = 6120$	$25 \times 80 = 2000$
$75 \times 8 = 600$	$82 \times 50 = 4100$	$68 \times 9 = 612$	$25 \times 800 = 20\,000$
$80 \times 8 = 640$	$82 \times 500 = 41\,000$	$68 \times 900 = 61\,200$	$25 \times 160 = 4000$

Calculations:

1

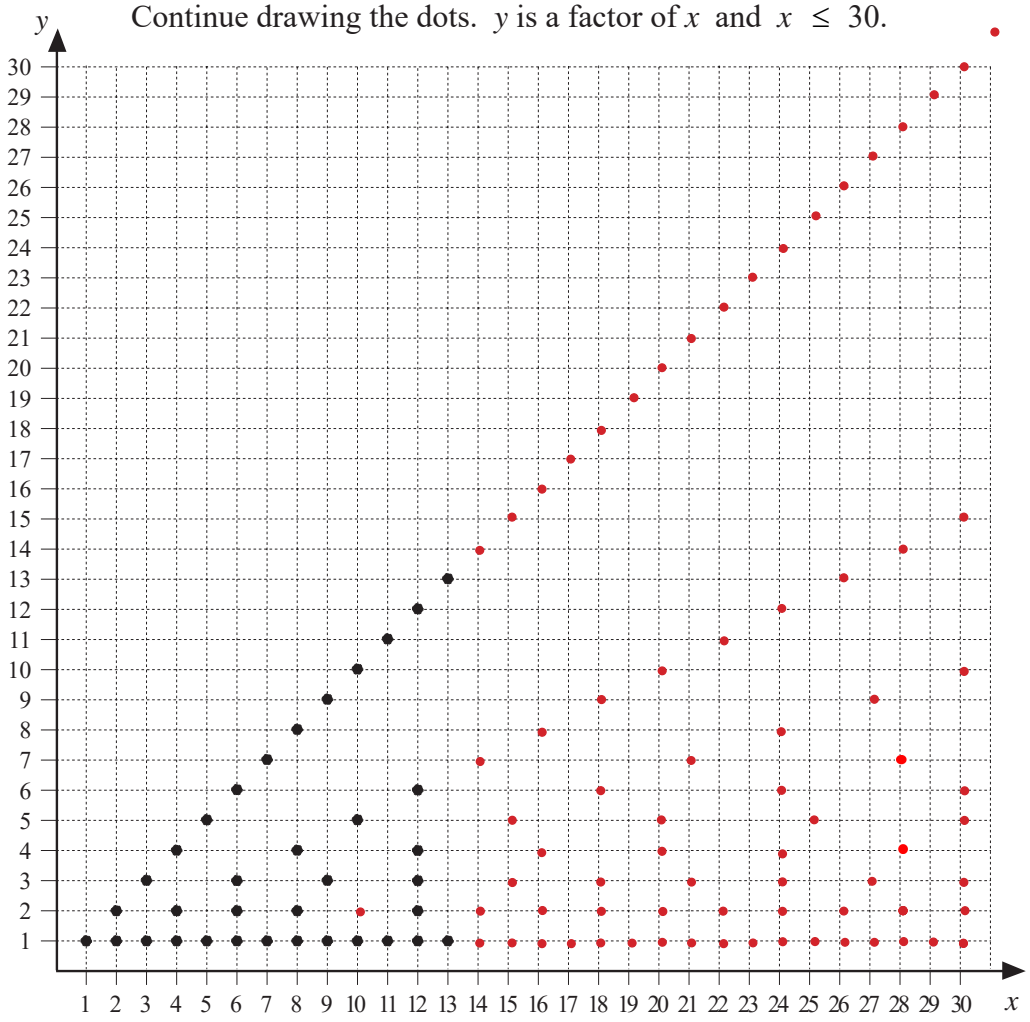
a) Complete the table to show how 24 flowers can be arranged in equal bunches.

Flowers per bunch	1	2	3	4	6	8	12	24
Number of bunches	24	12	8	6	4	3	2	1

b) List the factors of 24. 1, 2, 3, 4, 6, 8, 12, 24

2

a) Continue drawing the dots. y is a factor of x and $x \leq 30$.



b) Complete these statements.

i) x is a [multiple] of y

ii) A = {has exactly two factors} = { prime number }

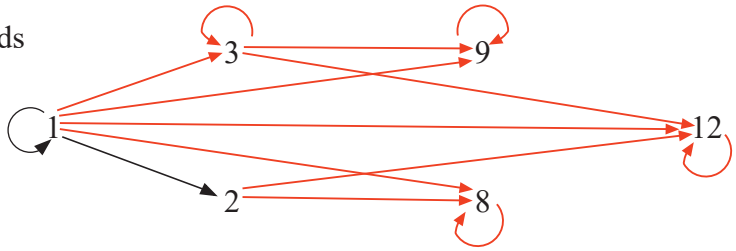
iii) B = {has an odd number of factors} = { square number }

iv) C = {has only one factor} = { number 1 }

3

The arrows point towards the multiples.

Continue drawing the arrows.



1

Fill in the missing numbers. If there is a remainder, write it beside the box.

a) $73 \div 7 =$ [10] r 3

b) $83 \div 10 =$ [8] r 3

c) $96 \div 16 =$ [6]

d) $144 \div$ [14] $= 10$, r 4

e) $121 \div 10 =$ [12] r 1

f) $66 \div 11 =$ [6]

2

Write these numbers in the correct set.

15 30 41 77 80 92 104 150 300

a) Divisible by 2: 30 80 92 104 150 300

b) Multiple of 4: 80 92 104 300

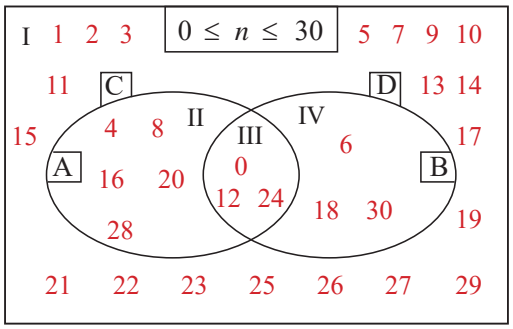
c) Divisible by 5: 15 30 80 150 300

d) Multiple of 10: 30 80 150 300

e) Divisible by 25: 150 300

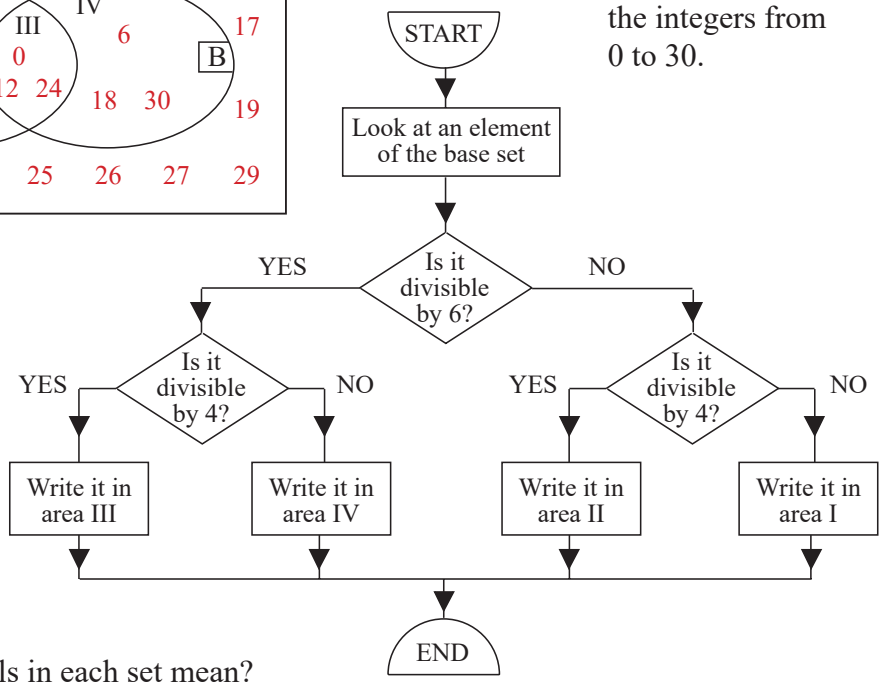
f) Multiple of 100: 300

3



Fill in the **Venn** diagram by following the **flow chart**.

The base set contains the integers from 0 to 30.



What do the labels in each set mean?

A = { Multiple of 4 *or* divisible by 4 }

C = { Not a multiple of 4 *or* not divisible by 4 }

B = { Multiple of 6 *or* divisible by 6 }

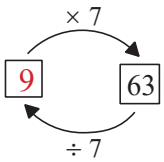
D = { Not a multiple of 6 *or* not divisible by 6 }

1

Solve the equations.

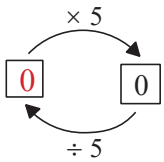
a) $\boxed{x} \times 7 = 63$

$x = \boxed{9}$



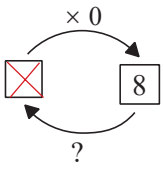
b) $\boxed{y} \times 5 = 0$

$y = \boxed{0}$



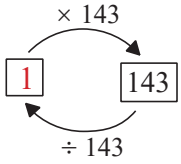
c) $\boxed{z} \times 0 \neq 8$

$z \neq \boxed{\ }$



d) $\boxed{u} \times 143 = 143$

$u = \boxed{1}$



2

Fill in the missing numbers. Compare the results in each row.

a) $(12 + 10) \times 5 = \boxed{110}$ $\quad 12 + 10 \times 5 = \boxed{62}$ $\quad 12 \times 5 + 10 \times 5 = \boxed{110}$

b) $32 \times 3 - 12 \times 3 = \boxed{60}$ $\quad (32 - 12) \times 3 = \boxed{60}$ $\quad 32 - 12 \times 3 = \boxed{-4}$

c) $72 \div 8 + 24 \div 8 = \boxed{12}$ $\quad (72 + 24) \div 8 = \boxed{12}$ $\quad 72 + 24 \div 8 = \boxed{75}$

d) $(32 - 12) \div 4 = \boxed{5}$ $\quad 32 \div 4 - 12 \div 4 = \boxed{5}$ $\quad 32 - 12 \div 4 = \boxed{29}$

e) $(42 - 10) + 5 = \boxed{37}$ $\quad 42 - 10 + 5 = \boxed{37}$ $\quad 42 - (10 + 5) = \boxed{27}$

f) $(10 \times 8) \times (25 \times 8) = \boxed{16\,000}$ $\quad (10 \times 25) \times 8 = \boxed{2000}$ $\quad 10 \times 25 \times 8 = \boxed{2000}$

g) $42 \times 12 \div 3 = \boxed{168}$ $\quad (42 \div 12) \times 3 = \boxed{10.5}$ $\quad 42 \times (12 \div 3) = \boxed{168}$

3

In November, a family spent £780 on heating and £1320 on food.

How much did the family spend on average on heating and food each day during that month?

Plan: (£780 + £1320) ÷ 30

Answer: On average, they spent £70 each day.

C: $780 + 20 + 1300 = 800 + 1300$
$= 2100$

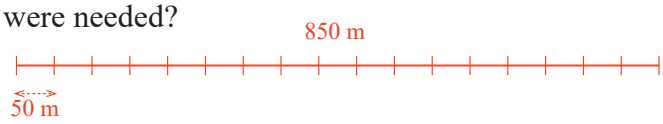
$2100 \div 30 = 210 \div 3 = 70$

4

a) Complete the diagram, then write a plan. Do the calculation and check the result.

Along an 850 m route a marker was placed at each 50 m.
How many markers were needed?

Diagram:



Plan: 850 m ÷ 50 m *C*: 850 ÷ 50 = 17

Answer: 17 markers plus one at the beginning (or end) so 18 markers are needed.

b) How much time is needed to boil 16 eggs if it takes 4 minutes to boil one egg?

Answer: 4 minutes - all eggs together in one large pan.

1

Do the calculations (in your exercise book if you need more space) and write the results.

a) $36 \div 6 = 6$ b) $38 \div 19 = 2$ c) $480 \div 40 = 12$ d) $490 \div 7 = 70$

e) $51 \div 7 = 7$ r 2 f) $38 \div 6 = 6$ r 2 g) $420 \div 40 = 10$ r 20 h) $490 \div 80 = 6$ r 10

2

Do the calculations and check the results.

a)

		2	9	r 2
3	8	9		
	−	6		
		2	9	
	−	2	7	
			2	

b)

		2	2	r 1
4	8	9		
	−	8		
		0	9	
		−	8	
			1	

c)

		1	7	r 4
5	8	9		
	−	5		
		3	9	
	−	3	5	
			4	

d)

		1	4	r 5
6	8	9		
	−	6		
		2	9	
	−	2	4	
			5	

$89 =$ $29 \times 3 + 2$ $89 =$ $22 \times 4 + 1$ $89 =$ $17 \times 5 + 4$ $89 =$ $14 \times 6 + 5$

3

Do the calculations and check the results.

a)

		1	3	r 5
7	9	6		
	−	7		
		2	6	
	−	2	1	
			5	

b)

		1	2	
8	9	6		
	−	8		
		1	6	
	−	1	6	
			0	

c)

		0	7	9	r 1
2	1	5	9		
	−	1	4		
			1	9	
		−	1	8	
				1	

d)

		1	6	3	r 2
3	4	9	1		
	−	3			
		1	9		
	−	1	8		
			1	1	
		−		9	
				2	

e)

			5	4	r 5
9	4	9	1		
	−	4	5		
			4	1	
		−	3	6	
				5	

Check:

$13 \times 7 = 91$
$91 + 5 = 96$

$12 \times 8 = 96$

$79 \times 2 = 158$
$158 + 1 = 159$

$163 \times 3 = 489$
$489 + 2 = 491$

$54 \times 9 = 486$
$486 + 5 = 491$

4

Write a plan, do the calculation and check the result. Write the answer in a sentence.

A baker needs 7 kg of flour to make 175 rolls.

a) How many rolls can be made with 1 kg of flour?

7 kg makes 175 rolls
1 kg makes $175 \div 7$ rolls

25 rolls can be made with 1 kg flour.

$$\begin{array}{r} 25 \\ 7\overline{)175} \\ 14 \\ \hline 35 \\ 35 \\ \hline 0 \end{array}$$

Check:
$25 \times 7 = 175$

b) How much flour is needed to make one roll?

1 kg = 1000 g

$1000 \div 25 = 40$
40 g of flour is needed to make 1 roll.

1

Do the divisions in column form and check them.

a) 123 ÷ 9

		1	3	r 6
9	1	2	3	
−		9		
		3	3	
	−	2	7	
			6	

		1	3
×			9
	1	1	7

117 + 6 = 123

b) 123 ÷ 10

			1	2	r 3
1	0	1	2	3	
	−	1	0		
			2	3	
		−	2	0	
				3	

		1	2
×		1	0
	1	2	0

120 + 3 = 123

c) 123 ÷ 11

			1	1	r 2
1	1	1	2	3	
	−	1	1		
			1	3	
		−	1	1	
				2	

		1	1
×		1	1
1	2	1	

121 + 2 = 123

d) 123 ÷ 12

			1	0	r 3
1	2	1	2	3	
	−	1	2		
			0	3	
		−		0	
				3	

		1	0
×		1	2
1	2	0	

120 + 3 = 123

2

Do the divisions and check them.

a)

		1	6	6	r 2
6	9	9	8		
−	6				
	3	9			
−	3	6			
		3	8		
	−	3	6		
			2		

	1	6	6
×			6
9	9	6	

996 + 2 = 998

b)

		1	6	6	r 3
6	9	9	9		
−	6				
	3	9			
−	3	6			
		3	9		
	−	3	6		
			3		

	1	6	6
×			6
9	9	6	

996 + 3 = 999

c)

		1	6	6	r 4
6	1	0	0	0	
−		6			
	−	4	0		
		3	6		
			4	0	
		−	3	6	
				4	

		1	6	6
×			6	
9	9	6		

996 + 4 = 1000

d)

		1	6	6	r 5
6	1	0	0	1	
−		6			
		4	0		
	−	3	6		
			4	1	
		−	3	6	
				5	

		1	6	6
×			6	
9	9	6		

996 + 5 = 1001

e)

		1	6	7
6	1	0	0	2
−		6		
		4	0	
	−	3	6	
			4	2
		−	4	2
				0

		1	6	7
	×			6
1	0	0	2	

3

Do the divisions in any order you wish as quickly as you can in your exercise book.
Write only the results here.

a) 983 ÷ 8 = 122 r 7 b) 878 ÷ 9 = 97 r 5 c) 789 ÷ 10 = 78 r 9

d) 576 ÷ 70 = 8 r 16 e) 576 ÷ 27 = 21 r 9 f) 12 121 ÷ 11 = 1101 r 10

4

In your exercise book, write a plan, do the calculation and check the result.
Write the answer in a sentence here.

a) If I divided up my pocket money so that I had the same amount for 6 days, I would have 142 p each day and 3 p would be left over.

How much would remain if I divided up my pocket money equally over 7 days?

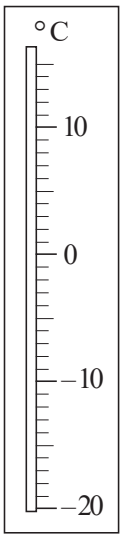
Answer: (855 p ÷ 7 = 122 p r 1 p) I would have £1.22 each day and 1 p left over.

b) I bought a length of material for £48 60 p. If it cost £1 80 p per metre, how many metres did I buy?

Answer: (4860 p ÷ 180 p = 27) I bought 27 m of material.

1

Use the thermometer diagram to help you work out how the temperatures change.



a) The temperature is –3°C, *New temperature*

then: i) it rises by 2°C ..... –1 °C

ii) it rises by 3°C ..... 0 °C

iii) it rises by 10°C ..... 7 °C

iv) it falls by 2°C ..... –5 °C

b) The temperature is 3°C,

then: i) it falls by 2°C ..... 1 °C

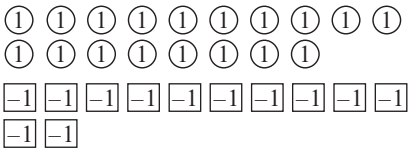
ii) it falls by 3°C ..... 0 °C

iii) it falls by 10°C ..... –7 °C

2

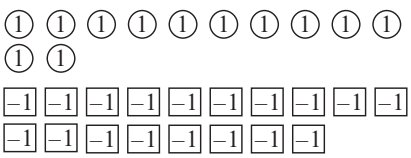
Write each person's balance as one amount of money.

a) Mike has £18 in cash and is £12 in debt.



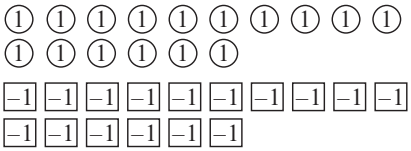
Balance £6

b) Nick has £12 in cash and is £18 in debt.



Balance – £6

c) Luke has £16 in cash and is £16 in debt.

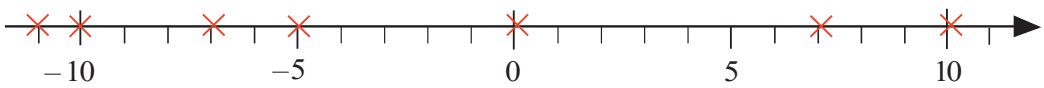


Balance £0

3

a) Mark the **opposite** numbers of this set on the number line.

{ – 7, 10, 0, 11, – 10, 5, 7 }



b) Write the actual values in the boxes, then write their **opposite** values beside them.

i) –˜(+ 7) = [–7] . 7 . ii) – (– 3) = [3] = 3 iii) –˜(0) = [0] . . .

4

a) 1, 2, 3, 4, 5, . . . are [positive] whole numbers or [natural] numbers.

b) –˜1, –˜2, –˜3, . . . are [negative] whole numbers.

1

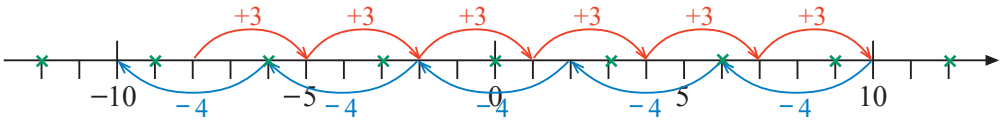
a) Mark the terms of this sequence in *red* on the number line.

The first term is –8.The following terms are 3 more than the previous term.

b) Mark the terms of this sequence in *blue*.

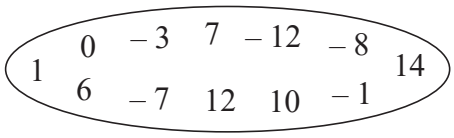
The first term is +10. The following terms are 4 less than the previous term.

c) Mark the numbers exactly divisible by 3 in *green*.



2

From this set:



a) list the numbers less than – 1 – 12, . . . – 8, . . . – 7, . . . – 3. . . . . .

b) list the numbers not more than 1 – 12, . . . – 8, . . . – 7, . . . – 3, . . . – 1, . . 0, 1

c) list the numbers more than or equal to –7 $-7, -3, -1, 1, 6, 7, 10, 14$

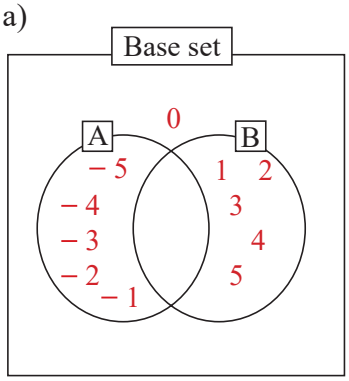
d) list the pairs of opposite numbers. $(12, -12,;\ 7, -7;\ 1\ -1)$

3

The base set is : $U = \{-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5\}$

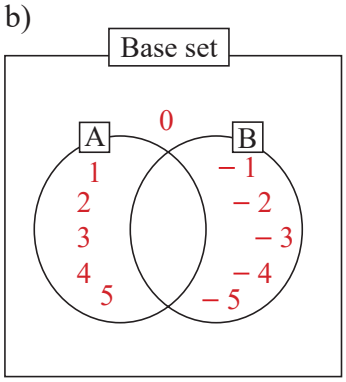
Write the numbers in the Venn diagrams.

a)



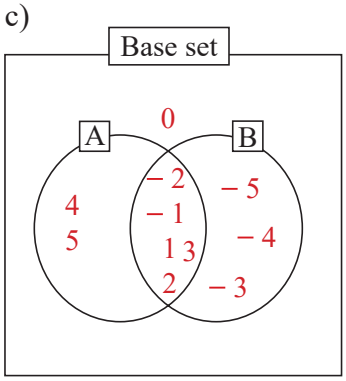
A = {negative numbers}
B = {positive numbers}

b)



A = {at least zero}
B = {at most zero}

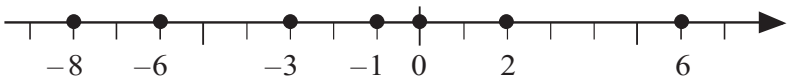
c)



A = {more than – 3}
B = {less than 4}

4

Put the numbers marked in order.



a) $-8 < -6 < -3 < -1 < 0 < 2 < 6$

b) $6 > 2 > 0 > -1 > -3 > -6 > -8$

1

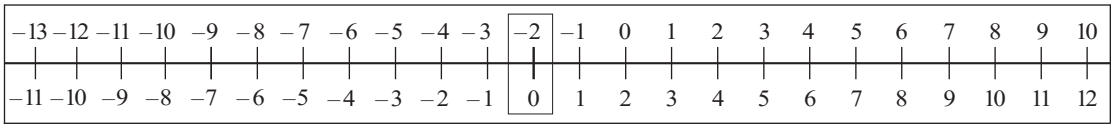
Work out the rule and complete the table. Write the rule in different ways.

a	2	−1	2	5	−3	7	4	0	7	−4	6
b	5	−4	−6	0	3	1	−7	−8	−7	11	−4
c	7	−5	−4	5	0	8	−3	−8	0	7	2

Rule: $c = a + b$ $a = c - b$ $b = c - a$

2

Use this counting strip to help you work out the sums and differences.



$3 - 1 = 2$ $2 - 0 = 2$ $5 - 3 = 2$ $9 - 7 = 2$ $12 - 10 = 2$

$1 - (-1) = 2$ $0 - (-2) = 2$ $-1 - (-3) = 2$ $-2 - (-4) = 2$ $-3 - (-5) = 2$

$2 - 4 = -2$ $3 - 5 = -2$ $6 - 8 = -2$ $1 - 3 = -2$ $0 - 2 = -2$

$-1 - 1 = -2$ $-2 - 0 = -2$ $-3 - (-1) = -2$ $-5 - (-3) = -2$ $-8 - (-6) = -2$

$2 + 3 = 5$ $2 + 5 = 7$ $2 + 10 = 12$ $2 + (-2) = 0$ $2 + (-5) = -3$

$-2 + 0 = -2$ $-2 + 1 = -1$ $-2 + 2 = 0$ $-2 + 3 = 1$ $-2 + 7 = 5$

$-2 + (-1) = -3$ $-2 + (-2) = -4$ $-2 + (-5) = -7$ $-2 + (-9) = -11$ $-2 + (-4) = -6$

3

Work out the rule and complete the table. Fill in the word missing from the statement.

x	5	6	−2	5	−2	4	2	8	−3	3	−2	−5	6
y	5	3	0	−2	5	9	−5	−8	10	−10	−5	−2	−6
z	0	3	2	7	7	5	7	16	13	13	3	3	12

z is the [distance] between x and y

4

Solve the inequalities if the solutions are integer numbers.

a) $\square \geq -5$ $\square$: $-5, -4, -3, -2, -1, 0, \ldots$

b) $\triangle < 3$ $\triangle$: $2, 1, 0, -1, -2, -3, \ldots$

c) $-5 < \cap < 2$ $\cap$: $-4, -3, -2, -1, 0, 1$

d) $-7 < \rceil\lceil$ and $\rceil\lceil < -1$ $\rceil\lceil$: $-6, -5, -4, -3, -2$

e) $2 < \leftrightarrow$ or $\leftrightarrow < -3$ $\leftrightarrow$: $3, 4, 5, 6, 7, \ldots$ or $-4, -5, -6, -7, \ldots$

1

Work out the rule and complete the table. Write the rule in different ways.

a	– 5	3	– 2	6	– 1	8	0	– 3	11	– 44
b	5	– 3	2	– 6	1	– 8	0	3	– 11	44

b = opposite of a $\quad$ a = opposite of b $\quad$ $a + b = 0$

2

Work out the rule and complete the table. Fill in the words missing from the statement.

x	– 7	– 6	– 5	– 4	– 3	– 2	– 1	0	1	2	3	4	5
y	7	6	5	4	3	2	1	0	1	2	3	4	5

y is the [distance] of x from [0]

3

Decide whether the statement is true or false and write a ✓ or a ✗ in the box.

a) Any integer number is greater than its opposite number. (e.g. $0 \nearrow 0$, $-3 \nearrow 3$) ✗

b) There is a number which is greater than its opposite number. ✓

c) There is a number which is as far from 5 as it is from the opposite of 5. ✓

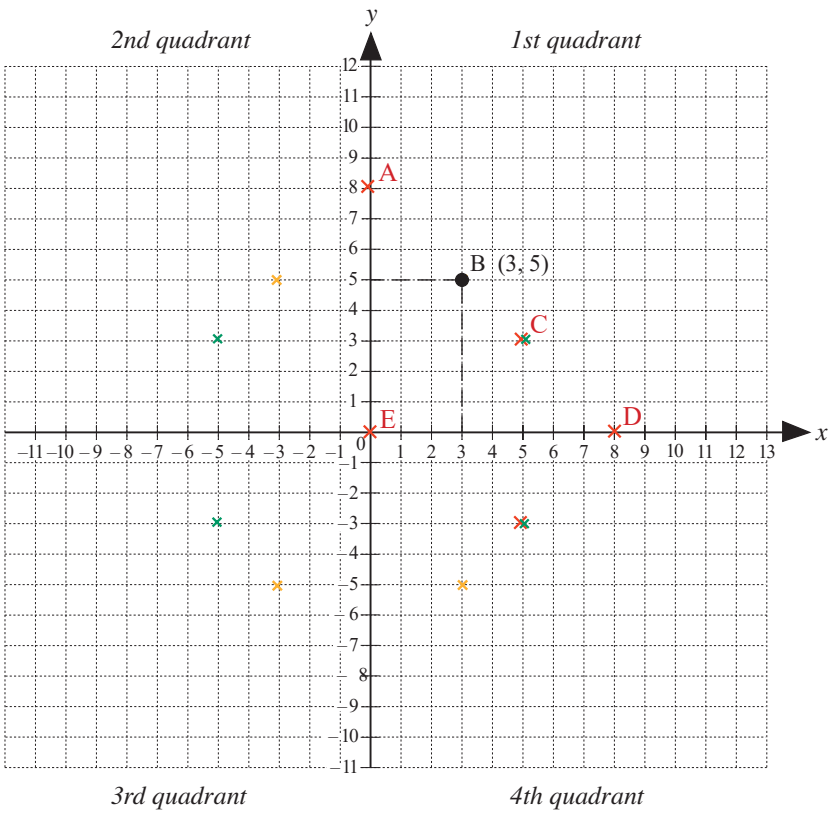
d) The greater of two negative numbers is the number closer to zero. ✓

4

a) Plot these points on the graph.

A (0, 8)
B (3, 5)*
C (5, 3)
D (8, 0)
E (0, 0)

* already drawn



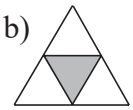
b) Plot all the points which are 5 units from the y-axis and 3 units from the x-axis.

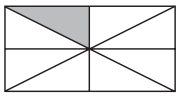
c) Plot all the points which are 3 units from the y-axis and 5 units from the x-axis.

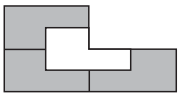
Shown in green ×.
Shown in gold ×.

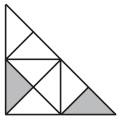
1 What part of the shapes are shaded?

a)  $\frac{2}{4} = \frac{1}{2}$

b)  $\frac{1}{4}$

c)  $\frac{1}{8}$

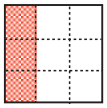
d)  $\frac{3}{4}$

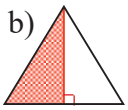
e)  $\frac{2}{8} = \frac{1}{4}$

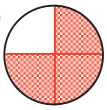
f)  $\frac{1}{4}$

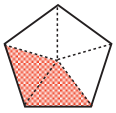
2 Colour the given fraction of each shape.

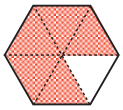
e.g.

a)  $\frac{1}{3}$

b)  $\frac{1}{2}$

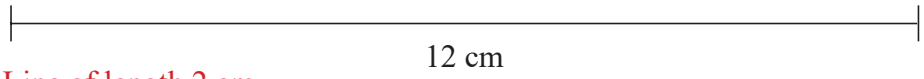
c)  $\frac{3}{4}$

d)  $\frac{2}{5}$

e)  $\frac{5}{6}$

f)  $\frac{3}{7}$

3 a) Draw lines which are: i) $\frac{1}{6}$ ii) $\frac{5}{6}$ iii) $\frac{7}{6}$ of the length of this 12 cm line segment.



i) Line of length 2 cm

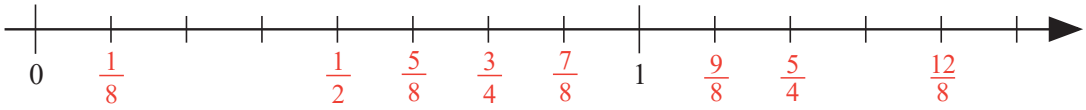
ii) Line of length 10 cm

iii) Line of length 14 cm

b) Write their lengths below the lines.

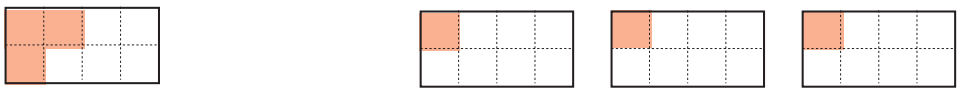
4 Mark the positions of these fractions on the number line.

$\frac{1}{8}, \frac{1}{2}, \frac{3}{4}, \frac{7}{8}, \frac{9}{8}, \frac{5}{4}, \frac{5}{8}, \frac{12}{8}$



5 Which would give you more chocolate?

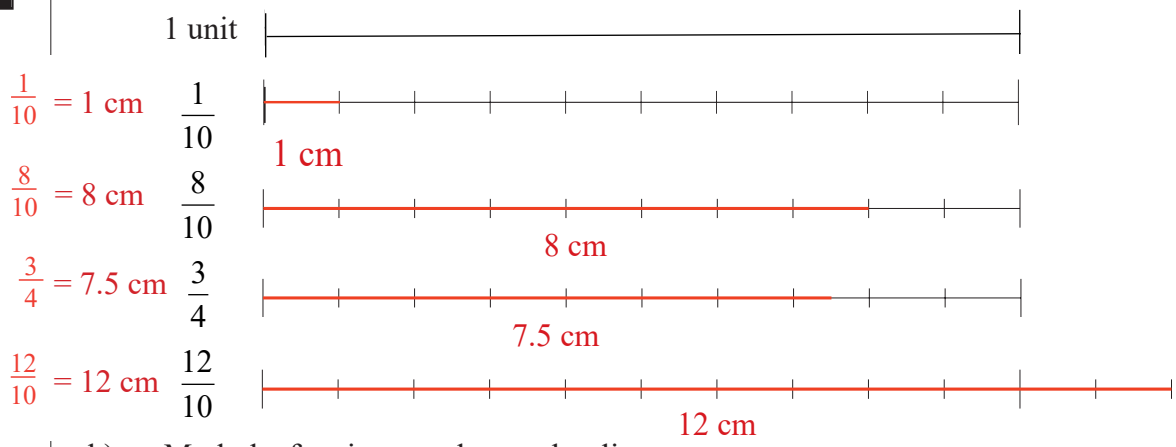
$\frac{3}{8}$ of one bar or $\frac{1}{8}$ of 3 bars



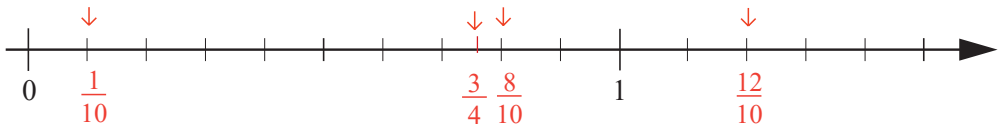
Answer: Equal amounts of chocolate.

1

a) Use a ruler to draw the required parts of this 10 cm line segment.



b) Mark the fractions on the number line.



2

Colour:

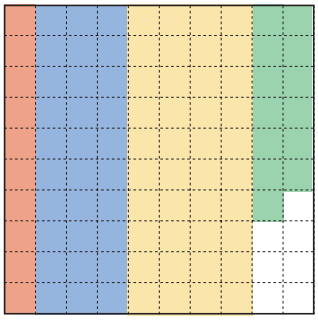
a) $\frac{1}{10}$ of the square in *red*

b) $\frac{30}{100}$ of the square in *blue*

c) $\frac{2}{5}$ of the square in *yellow*

d) $\frac{13}{100}$ of the square in *green*.

e.g.



$\frac{1}{10} = \frac{10}{100}$

$\frac{2}{5} = \frac{4}{10} = \frac{40}{100}$

What part is not coloured? $\frac{7}{100}$

3

In your exercise book, calculate these parts of a 72 cm line segment and write the lengths in the boxes.

a) $\frac{2}{6}$ 24 cm b) $\frac{5}{6}$ 60 cm c) $\frac{9}{6}$ 108 cm

4

Write an operation for each part. Give the answer as a fraction or a whole number.

a) One seventh of three units: $3 \div 7 = \frac{3}{7}$

b) The ratio of 3 to 10: $3 \div 10 = \frac{3}{10}$

c) $\frac{3}{4}$ of 100: $100 \div 4 \times 3 = 25 \times 3 = 75$

d) The ratio of 15 to 8: $15 \div 8 = \frac{15}{8} = 1\frac{7}{8}$

e) 1 fifth of 1 third of 1 unit: $1 \div 3 \div 5 = \frac{1}{3} \div 5 = \frac{5}{15} \div 5 = \frac{1}{15}$

f) 1 third of 1 fifth of 1 unit: $1 \div 5 \div 3 = \frac{1}{5} \div 3 = \frac{3}{15} \div 3 = \frac{1}{15}$

g) 32 divided by 100: $32 \div 100 = \frac{32}{100} = \frac{16}{50} = \frac{8}{25}$

1

Write the decimal numbers in the place-value table, then write the numbers as the sum of a whole number and a fraction.

		Th	H	T	U	t	h	th	
a)	16.07			1	6	0	7		$16 + \frac{7}{100} = 16\frac{7}{100}$
b)	518.26		5	1	8	2	6		$518 + \frac{26}{100}$
c)	1001.108	1	0	0	1	1	0	8	$1001 + \frac{108}{1000}$
d)	0.058				0	0	5	8	$\frac{58}{1000}$

2

Write these numbers as decimals. Do necessary calculations in your exercise book.

a) $\frac{35}{10} = 3.5$ b) $\frac{7}{100} = 0.07$ c) $\frac{1003}{100} = 10.03$

d) $\frac{1003}{10} = 100.3$ e) $\frac{89}{10} = 8.9$ f) $83 + \frac{7}{10} = 83.7$

g) $\frac{3}{100} = 0.03$ h) $\frac{68}{100} = 0.68$ i) $\frac{527}{100} = 5.27$

j) $1 + \frac{1}{2} = 1.5$ k) $15 + \frac{2}{5} = 15.4$ l) $\frac{1}{4} = 0.25$

m) $\frac{6}{20} = 0.3$ n) $143 + \frac{17}{50} = 143.34$ o) $2\frac{3}{4} = 2.75$

3

Write these decimals as fractions.

a) $3.01 = 3\frac{1}{100}$ b) $0.07 = \frac{7}{100}$ c) $103.9 = 103\frac{9}{10}$ d) $0.20 = \frac{1}{5}$

e) $20.8 = 20\frac{4}{5}$ f) $101.101 = 101\frac{101}{1000}$ g) $30.3 = 30\frac{3}{10}$ h) $1614.85 = 1614\frac{17}{20}$

4

Express these measures as decimals.

a) 1 cm = [0.01] m b) 3 m 5 cm = [3.05] m c) 10 g = [0.01] kg

d) 2 m 12 mm = [201.2] cm = [2.012] m e) 58 ℓ 18 cl = [58.18] ℓ

f) 28 kg 300 g = [28.3] kg g) 3 hours 6 minutes = [3.1] hours

5

Express these amounts as:

a) decimals: i) £2 31 p = £ [2.31] ii) 1810 p = £ [18.10]

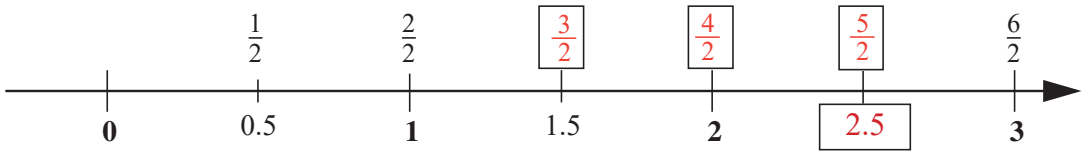
iii) £61 50 p = £ [61.50] iv) 44 999 p = £ [449.99]

(Not £61.5 as it is usual to write £s using 2 decimal digits to show the hundredths (i.e. pence).)

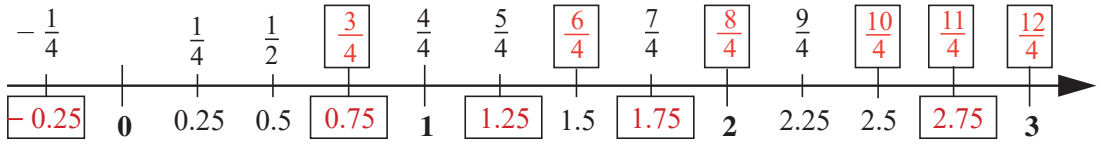
b) £s and pence: i) £18. 04 = £ [18] [4] p ii) 6549 p = £ [65] [49] p

1 Fill in the missing numbers.

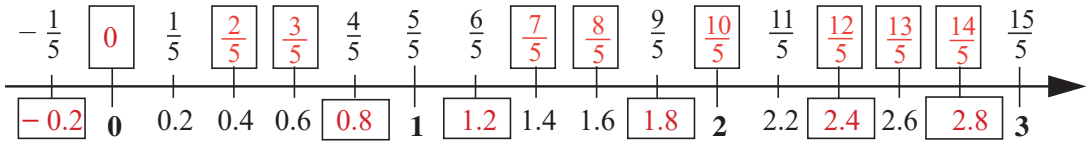
a)



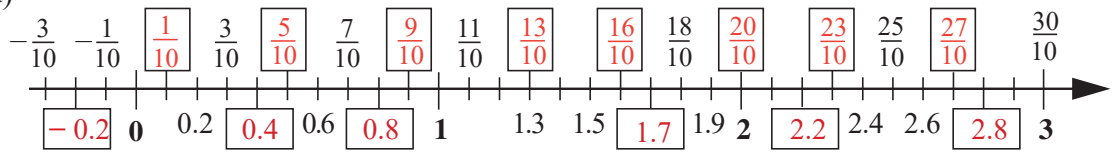
b)



c)



d)



2 Write the decimals as fractions with denominator 100. Fill in the missing signs.

a) $0.6 > 0.06$; $\frac{60}{100} > \frac{6}{100}$

b) $0.7 = 0.70$; $\frac{70}{100} = \frac{70}{100}$

c) $0.12 > 0.1$; $\frac{12}{100} > \frac{10}{100}$

d) $1.03 < 1.04$; $\frac{103}{100} < \frac{104}{100}$

e) $0.04 < 0.3$; $\frac{4}{100} < \frac{30}{100}$

f) $2.3 > 2.29$; $\frac{230}{100} > \frac{229}{100}$

3 Write three numbers which are between each given pair.

e.g.

a) $5.3 < 5.35 < 5.4 < 5.45 < 5.5$

b) $0.6 < 0.64 < 0.65 < 0.66 < 0.7$

c) $1.9 < 1.91 < 1.95 < 1.99 < 2$

d) $1.5 < 1.501 < 1.508 < 1.509 < 1.51$

4 Write the numbers in increasing order.

a) 0.2, 0.202, 2.02, 2.22, 20.2, 20.02, 2.002, 202.2

0.2, 0.202, 2.002, 2.02, 2.22, 20.02, 20.2, 202.2

b) 0.001, – 1, – 1.01, – 1.11, 0.1, – 1.1, – 10.1, 1.11

– 10.1, – 1.11, – 1.1, – 1.01, – 1, 0.001, 0.1, 1.11