1

Complete the multiplication table.

Make sure that you know it by heart.

×	0	1	2	3	4	5	6	7	8	9	10	11	12	13
0	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	13
2	0	2	4	6	8	10	12	14	16	18	20	22	24	26
3	0	3	6	9	12	15	18	21	24	27	30	33	36	39
4	0	4	8	12	16	20	24	28	32	36	40	44	48	52
5	0	5	10	15	20	25	30	35	40	45	50	55	60	65
6	0	6	12	18	24	30	36	42	48	54	60	66	72	78
7	0	7	14	21	28	35	42	49	56	63	70	77	84	91
8	0	8	16	24	32	40	48	56	64	72	80	88	96	104
9	0	9	18	27	36	45	54	63	72	81	90	99	108	117
10	0	10	20	30	40	50	60	70	80	90	100	110	120	130
11	0	11	22	33	44	55	66	77	88	99	110	121	132	143
12	0	12	24	36	48	60	72	84	96	108	120	132	144	156
13	0	13	26	39	52	65	78	91	104	117	130	143	156	169

2

Practise addition and subtraction.

a) $567 + 58 = 625$

b) $4400 + 3800 = 8200$

c) $603 - 240 = 363$

d) $8370 - 1370 = 7000$

e) $520 + 1400 - 360 = 1560$

f) $6500 - 2700 + 4100 = 7900$

g) $\frac{1}{10} + \frac{3}{10} + \frac{5}{10} - \frac{2}{10} = \frac{7}{10}$

h) $\frac{4}{7} + \frac{6}{7} - \frac{5}{7} = \frac{5}{7}$

i) $0.8 + 0.7 - 0.3 = 1.2$

j) $6.4 - 1.5 + 10.1 = 15.0$

3

Practise multiplication.

a)
2	3	0	6
		×	4
9	2	2	4

b)
	4	3	5
	×	1	0
4	3	5	0

c)
1	3	3	1
		×	6
7	9	8	6

d)
	9	7	8
		×	9
8	8	0	2

4

Practise division.

a)
		8	0	3
8	6	4	2	4

b)
	1	3	9	5	r 1
3	4	1	8	6	

c)
		4	7	6	r 1
7	3	3	3	3	

1

Practise addition.

a)

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

b)

	5	0	3	7
+		6	0	6
	5	6	4	3

c)

	3	3	3	3
		3	3	3
			3	3
+				3
	3	7	0	2

2

Practise subtraction.

a)

	7	2	6	8
–	2	4	2	5
	4	8	4	3

b)

	6	0	4	5
–		7	0	7
	5	3	3	8

c)

	8	8	8	8
–		9	9	9
	7	8	8	9

3

Do these calculations in your exercise books and write the results here.

a) $4809 + 2615 = 7424$

b) $7429 - 5842 = 1587$

c) $3582 + 45 + 426 = 4053$

d) $5083 + 205 - 1793 = 3495$

e) $583 \times 9 = 5247$

f) $4926 \div 7 = 703 \text{ r } 5$

4

Which numbers can be written instead of the letters?

a) $400 \times 5 + a = 9020$

$a =$ 7020

b) $8 \times (1000 - b) = 4200 + 1400$

$b =$ 300

c) $120 \times 3 - 400 \div 2 \leq 200 - c$

c: 40, 39, ...

or $c \leq$ 40

d) $30 \times 20 + d > 6970$

d: > 6370

or $d >$ 6370

e) $4 \times e + 50 = 290$

$e =$ 60

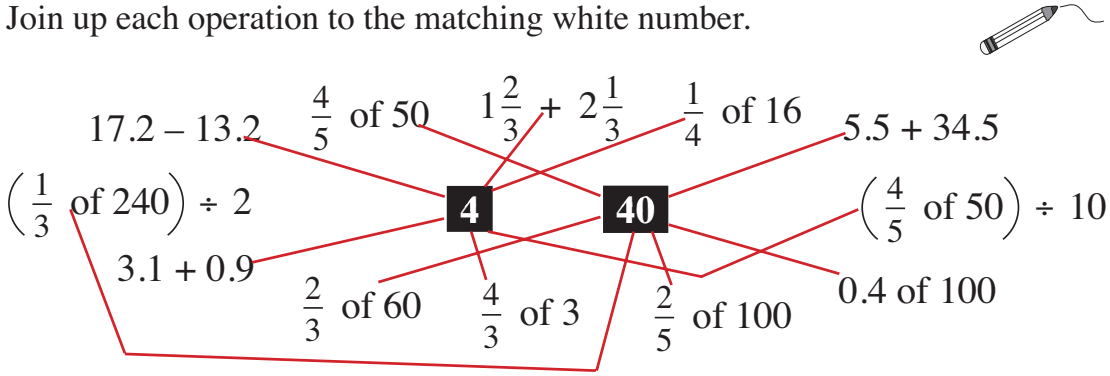
f) $f \div 11 \geq 5$

f: 55, 56, 57, ...

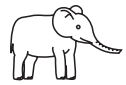
or $f \geq$ 55

5

Join up each operation to the matching white number.



1 *Elephant* drank 4 more litres of water than *Rhino*. Complete the table.

	32 litres	31 litres	12.9 litres	1630 cl	$16\frac{3}{4}$ litres	36.2 litres	14.40 litres
	28 litres	27 litres	8900 ml	12.3 litres	$12\frac{3}{4}$ litres	32.2 litres	10.40 litres

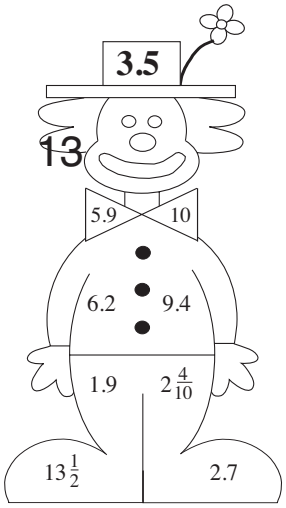
Rule: $E = R + 4$ $R = E - 4$ 4 litres $= E - R$

2 Solve these problems in your exercise book.

a) Liz has £5.60 and Sandra has £4.90. Who has more and how much more?
Liz has 70 p more than Sandra.

b) Ben and Danny have £70 altogether. Ben has £6.80 more than Danny.
How much money does each boy have?
Danny has £31.60; Ben has £38.40

3



Use the numbers in the clown to write subtractions.
The difference should be the number in his hat.

$13\frac{1}{2} - 10 = 3\frac{1}{2} = 3.5$

$9.4 - 5.9 = 3.5$

$6.2 - 2.7 = 3.5$

$5.9 - 2\frac{4}{10} = 5.9 - 2.4 = 3.5$

4 A bee flies steadily at 0.20 m per second. Complete the table. Write the rule.

Time (seconds)	1	2	3	4	5	0	10	100	12	8
Distance (m)	0.20	0.40	0.60	0.80	1	0	2	20	2.40	1.6

$D = T \div 5$ $T = D \times 5$ $5 = T \div D$ $\frac{1}{5} = D \div T$

5 1 kg of oranges costs £2.08. Complete the table to show the cost of several kg.

Quantity of (in kg)	1	2	3	4	5	6	7	8	9	10	$2\frac{1}{2}$
Price (in p)	208	416	624	832	1040	1248	1456	1664	1872	2080	520
Price (in £)	2.08	4.16	6.24	8.32	10.4	12.48	14.56	16.64	18.72	20.80	5.2

1

Do these calculations in your exercise book. What number is:

a) the difference between $\frac{5}{6}$ and $\frac{3}{6}$ $\frac{1}{3}$

b) 4.6 more than 3.9 8.5

c) 3520 less than 6770 3250

d) 7 times 826 5782

e) one sixth of 3828 638

f) 4 ninths of 4788? 2128

2

a)

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

b)

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

c)

		0	8	7
		2	3	0
+	2	0	3	
	2	3	4	7

d)

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

e)

		9	4	3
–		6	1	2
		3	3	1

f)

		8	4	7
–		3	4	6
		5	0	1

g)

		7	3	5
–		4	8	2
		2	5	3

h)

	1	7	5	6
–		6	8	
	1	0	7	6

3

Solve the problems in your exercise book.

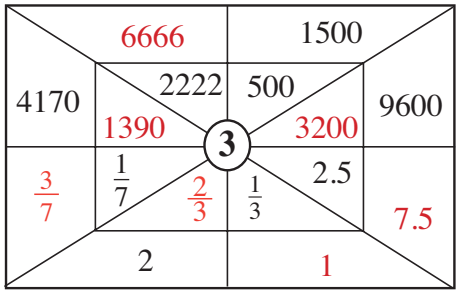
a) Sarah cut 2.17 m from a piece of ribbon 6 m 24 cm long.
How much ribbon did she have left? 4.07 m

b) Jim bought 6 litres of paint. He used 2.78 litres to paint the fence and 1 litre 25 cl to paint the gate. How much paint did he have left? 1.97 litres

4

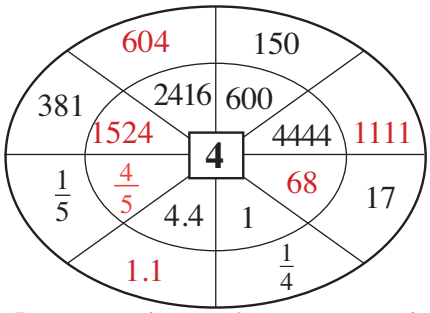
Work out the rule and fill in the missing numbers.

a)



Inner number × 3 = outer number

b)



Inner number ÷ 4 = outer number

5

Fill in the missing numbers.

a) 3 m 20 cm = [3.2] m

b) 4530 cl = [45.3] litres

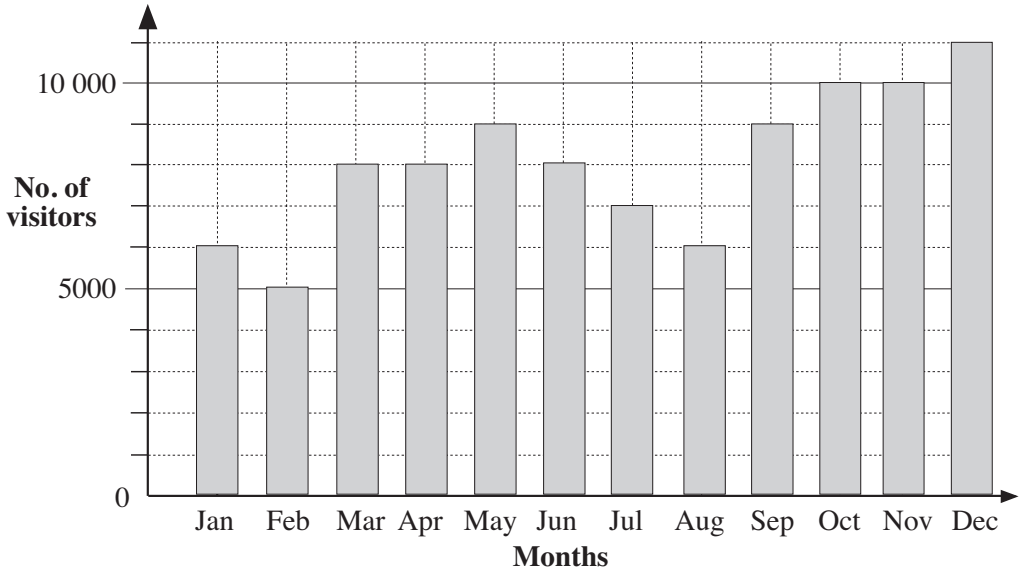
c) 7.30 m = [7] m [30] cm

d) 2.15 litres = [2] litres [15] cl

e) $5\frac{1}{2}$ kg = [5500] g

f) $\frac{3}{7}$ of a week = [3] days

1 An art gallery put on an exhibition of paintings by a famous artist. The graph shows the number of visitors (rounded to the nearest 1000) each month for a year.



a) Write the data in the table.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Visitors	6000	5000	8000	8000	9000	8000	7000	6000	9000	10000	10000	11000

b) In which month were there fewest visitors? February

c) In which month were there most visitors? December

d) In which months did 8000 people visit the exhibition? March, April, June

e) In which month did more than 9000 people visit it? October, November, December

2 Write these numbers in the place-value table.

a) Nine thousand, four hundred and seventy-four

b) $6 \times 1000 + 8 \times 10 + 5 \times 1$

c) 10 thousands + 3 hundreds + 47

d) $1 \times 10\,000 + 4 \times 1000 + 3 \times 10 + 9 \times 1$

e) 14 thousands + 670

TTh	Th	H	T	U
	9	4	7	4
	6	0	8	5
1	0	3	4	7
1	4	0	3	9
1	4	6	7	0

3 Do these calculations in your exercise books.

a) $1970 + 1000 \div 10 = 2070$

b) $8740 - 500 \times 5 = 6240$

c) $600 \times 6 + 5120 = 8720$

d) $2700 \div 9 + 8880 = 9180$

e) $(6000 + 450) \div 3 = 2150$

f) $3200 \div (10\,000 - 9680) = 10$

g) $7500 \times 2 + 5000 = 20\,000$

h) $(18\,000 - 6000) \div 4 = 3000$

1

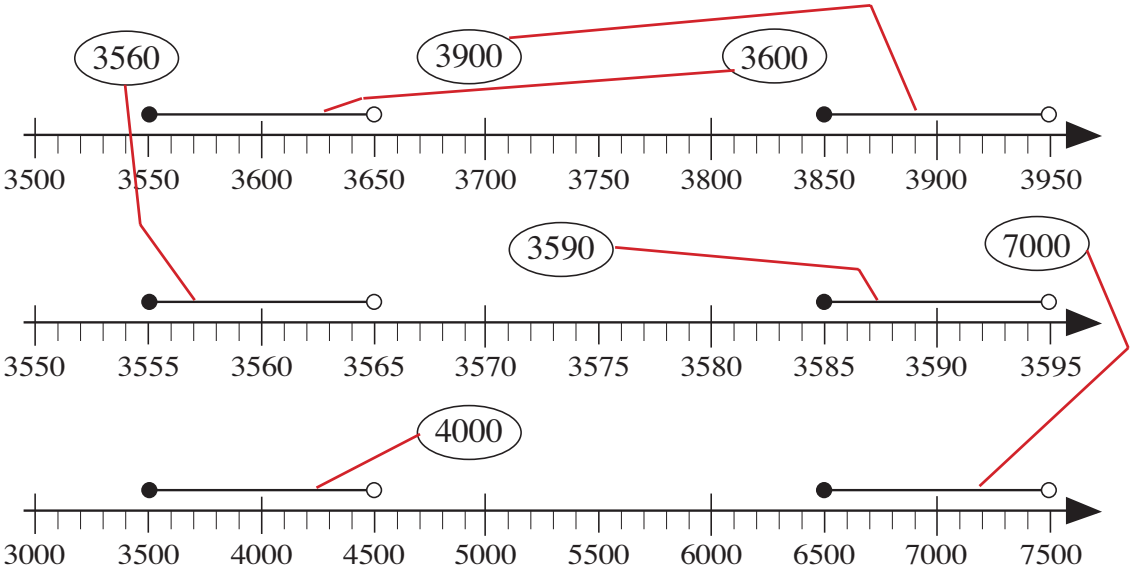
Round each number to the nearest 10, 100 and 1000.

Follow the example.

Number	Nearest 10	Nearest 100	Nearest 1000
3484 ≈	3480	3500	3000
6584 ≈	6580	6600	7000
9046 ≈	9050	9000	9000
9951 ≈	9950	10 000	10 000
10 078 ≈	10 080	10 100	10 000
15 305 ≈	15 310	15 300	15 000

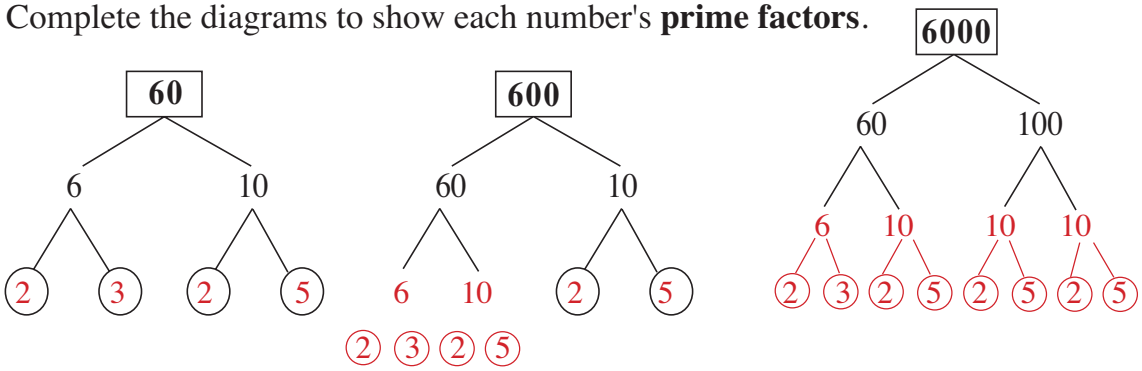
2

The numbers marked on the number lines have been rounded to the nearest 10, 100 or 1000. Join them up to the correct rounded number.



3

Complete the diagrams to show each number's **prime factors**.



4

List in order in your exercise books all the natural factors of these numbers. Write the factors in pairs, horizontally (as shown below) or vertically.

a) 60: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

b) 600: 1, 2, 3, 4, 5, 6, 8, 10, 12, ..., 300, 600 15, 20, 24, 25, 30, 40, 50, 60, 75, 100, 120, 150, 200

c) 6000: 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 3000, 6000 20, 24, 25, 30, 40, 48, 50, 60, 75, 80, 100, 120, 125, 150, 200, 240, 250, 300, 375, 400, 500, 600, 750, 1000, 1200, 1500, 2000

1 Write these numbers as digits. Colour the even numbers. Tick the numbers which are divisible by 3.

a) 5 thousands + 7 hundreds + 6 units = 5706

b) 6 thousands + 8 tens = 6080

c) 3 thousands + 4 hundreds + 9 tens + 1 unit = 3491

d) 16 hundreds + 2 tens = 1620

e) 13 thousands + 7 hundreds + 11 tens = 13810

2 Add 1, 10, 100 and 1000 to the numbers in the table.

Number	+ 1	+ 10	+ 100	+ 1000
5999	6000	6009	6099	6999
6899	6900	6909	6999	7899
4099	4100	4109	4199	5099
7009	7010	7019	7109	8009

3 Do the calculations in the easiest order.

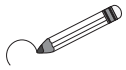
a) $1720 + 470 + 280 + 530 =$ $2000 + 1000 = 3000$

b) $3 \times 5 \times 70 \times 20 =$ $210 \times 100 = 21\,000$

c) $7100 + 730 + 900 + 170 =$ $8000 + 900 = 8900$

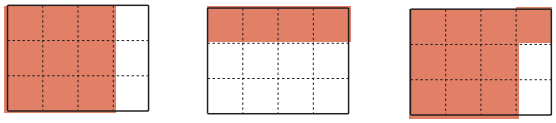
d) $2 \times 7 \times 50 \times 9 =$ $100 \times 63 = 6300$

Circle the numbers which are exactly divisible by 1000.



4 Each rectangle is 1 unit. Colour: a) $\frac{3}{4}$ b) $\frac{1}{3}$ c) $\frac{5}{6}$

E.g.



How much did you colour altogether?

$1\frac{11}{12}$

5 This line segment is 1 unit long.

1 unit

Write the lengths of these line segments as a fraction and as a decimal.

a) $\frac{7}{10} = 0.7$

b) $\frac{3}{10} = 0.3$

c) $\frac{5}{10} = 0.5$

d)

$\frac{12}{10} = 1\frac{2}{10} = 1.2$

e)

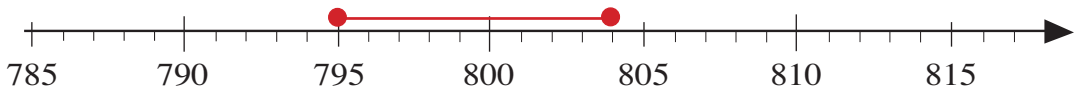
$\frac{1}{10} = 0.1$

What is the total length of the 5 line segments? $2\frac{8}{10}$

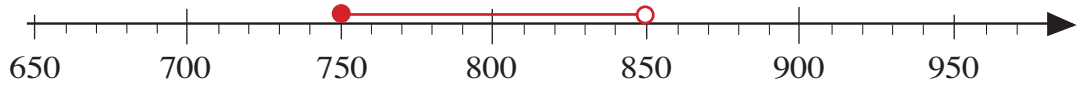
1 Write the next 10, 100 and 1000 less than and greater than the numbers.

	3572		10 324	
	less than	greater than	less than	greater than
Tens	3570	3580	10 320	10 330
Hundreds	3500	3600	10 300	10 400
Thousands	3000	4000	10 000	11 000

2 a) Mark the natural numbers which round to 800 as the nearest whole ten.



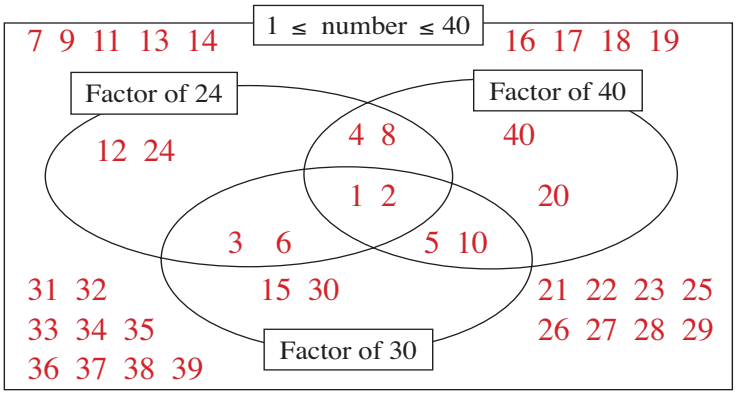
b) Mark the natural numbers which round to 800 as the nearest whole hundred.



3 Fill in the table as far as you can.

Numbers	Smallest	Greatest	How many?
2-digits	10	99	90
3-digits	100	999	900
4-digits	1000	9999	9000
5-digits	10 000	99 999	90 000
6-digits	100 000	999 999	900 000

4



Write the natural numbers from 1 to 40 in the correct set.

5 Write Arabic numbers in Roman numerals and Roman numerals in Arabic numbers.

a) LXXI b) MCXI c) 244 d) 2017 e) 69 f) MMDCC

. . . . 71 . . . . 1111 . . . . CCXLIV . . . . MMXVII . . . . LXIX . . . . 2700 . . .

1 Do the calculations in your exercise book. Write only the results here.

a) Which number is 1530 less than 4390 ? 2860

b) Which number is added to 4850 to make 10 000? 5150

c) Which number is 4 times 534 ? 2136

d) Which number is a quarter of 5340? 1335

e) Which number is the sum of 347 and 2430? 2777

f) Which number is the quotient of 5400 and 9? 600

2 Do the calculations in your exercise book. Write only the results here.

a) Add up the natural numbers which are not less than 1375 and not more than 1378. 5506

b) Multiply the natural numbers which are greater than or equal to 8 and less than 12. 7920

3 a) List the natural numbers which round to 4250 to the nearest ten and

i) are even numbers . . . 4246, 4248, 4250, 4252, 4254 . . . .

ii) have only even digits. . . . 4246, 4248 . . . . .

b) In your exercise book list the natural numbers which round to 7600 to the nearest hundred and

i) have only odd digits 7551, 7553, 7557, 7559, 7571, 7573, 7575, 7577, 7579, 7591, 7593, 7595, 7597, 7599

ii) have the digit 1 in the tens column. 7610, 7611, 7612, 7613, 7614, 7615, 7616, 7617, 7618, 7619

4 Solve this problem in your exercise book. Write only the answer here.

We have two iron pipes, each 6 m 40 cm long. Then we weld a 1 m length of pipe to one of them and an 80 cm length of pipe to the other.

How much longer will one pipe be than the other? 20 cm

5 Solve the problem in your exercise book. Write only the answers here.

When they were born, Peter weighed 2800 g and Jill weighed 3 kg 250 g.

a) Who was heavier at birth and by how much? . . Jill, by 450 g . . . . .

b) Within a month, both babies had put on 400 g in weight.

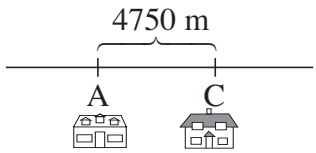
Which baby was heavier now and by how much? . . . . Same gain, so Jill by 450 g

Plan, estimate, calculate, check and write the answer in your exercise book.

1

Carol's house is 4750 m from Alice's house.
This is 1400 m closer than it is from Ben's house.

How far can Ben's house be from Alice's house?
1400 m or 10 900 m



2

Staff in a garden centre grew 7253 daffodils and 5126 tulips.
They delivered 3707 daffodils and 1598 tulips to the supermarket.

Which type of flower did they keep more of to sell in the garden centre and how many more?
18 more daffodils

3

Monica lives 875 m away from Leslie. Kate lives 9 times further away from Leslie than Monica does. *Diagram:*

How far away from Leslie does Kate live? 7875 m

4

Barry cycled at an average speed of 6 m per second along a 4860 m route.
On his return journey, he cycled at an average speed of 4 m per second.

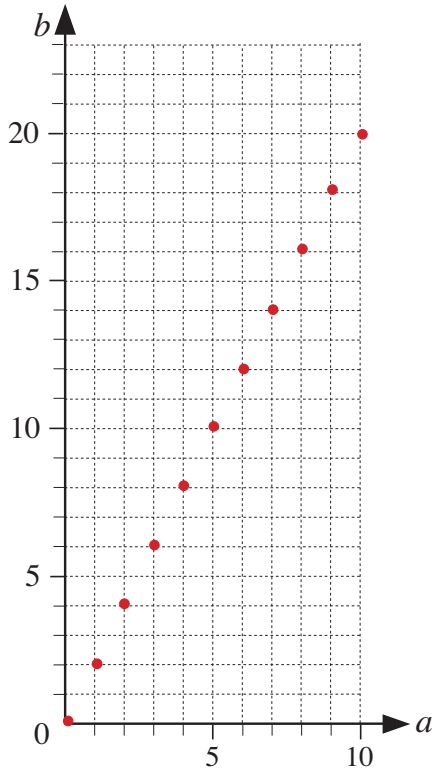
How much time did it take Barry altogether to cycle there and back?
33 mins 45 seconds

5

Fill in the tables using the rules given. Show the data as dots on the graphs.

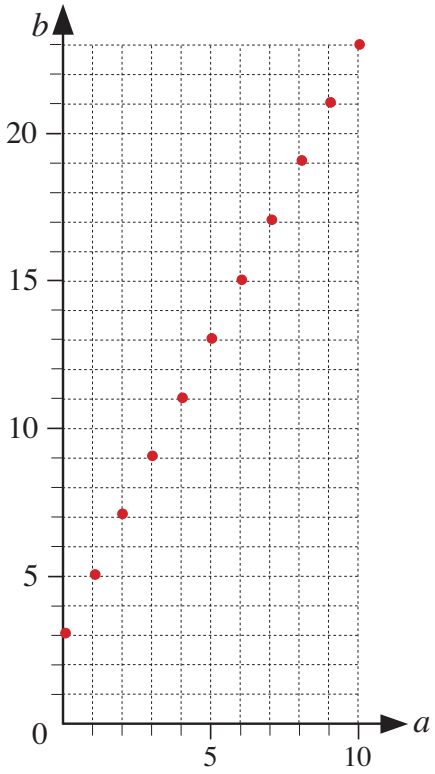
a) $b = 2 \times a$

a	b
0	0
1	2
2	4
3	6
4	8
5	10
6	12
7	14
8	16
9	18
10	20



b) $b = 2 \times a + 3$

a	b
0	3
1	5
2	7
3	9
4	11
5	13
6	15
7	17
8	19
9	21
10	23



1 Which is more? How many more? Write the missing signs and the differences.

a) 26×27 [>] $20 \times 20 + 6 \times 7$ b) 35×18 [=] $35 \times 10 + 35 \times 8$

260 0

c) 47×24 [>] $40 \times 24 + 7$ d) 59×32 [=] $60 \times 32 - 32$

161 0

2 Fill in the missing numbers.

a)	1 litre = [100] cl	4 litres = [400] cl	7 litres = [700] cl
b)	1 m = [1000] mm	4 m = [4000] mm	7 m = [7000] mm
c)	1 kg = [1000] g	4 kg = [4000] g	7 kg = [7000] g
d)	100 cl = [1] litres	300 cl = [3] litres	800 cl = [8] litres
e)	1000 mm = [1] m	3000 mm = [3] m	300 mm = [0.3] m
f)	1000 g = [1] kg	8000 g = [8] kg	800 g = [0.8] kg

3 Fill in the missing numbers.

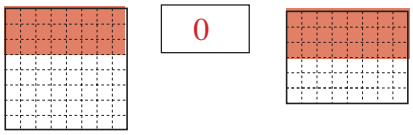
a)	$\frac{1}{5}$ m = [20] cm	$\frac{3}{5}$ m = [60] cm	$\frac{6}{5}$ m = [120] cm
b)	0.1 m = [100] mm	0.6 m = [600] mm	1.5 m = [1500] mm
c)	$\frac{1}{4}$ kg = [250] g	$\frac{2}{4}$ kg = [500] g	$\frac{3}{4}$ kg = [750] g
d)	0.1 kg = [100] g	0.5 kg = [500] g	1.4 kg = [1400] g

4 Which is more? How many more? Fill in the missing signs and differences.

a) $\frac{5}{6}$ of 36 [<] $\frac{4}{5}$ of 40 b) $\frac{3}{8}$ of 64 [=] $\frac{3}{6}$ of 48

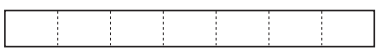
E.g:

2



0

5 Three sevenths of a piece of ribbon was cut off and 80 cm of ribbon was left.



a) What length of ribbon was cut off? 60 cm

b) What length was the original ribbon? 140 cm

1 How much time has passed between:

a) 1 January and 15 March in year which is not a leap year:

74 days = 10 weeks 4 days = 2 months 14 days*

b) 20 May and 10 September:

114 days = 16 weeks 2 days = 3 months 21 days*

c) 20 August and 24 December?

127 days = 18 weeks 1 days = 4 months 4 days*

* Counting on a calendar from the first to the last day.

2 The first bus in the morning leaves the depot at 05:30 and then buses leave every 12 minutes after that. List the times that the first 10 buses leave the depot.

05:30, 05:42, 05:54, 06:06, 06:18, 06:30, 06:42, 06:54, 07:06, 07:18

3 Write these time intervals in increasing order.

$\frac{3}{4}$ hour, $1\frac{1}{4}$ hours, 1 hour 10 minutes, $\frac{1}{3}$ hour, 25 minutes, $\frac{2}{3}$ hour

$\frac{1}{3}$ hour < 25 mins < $\frac{2}{3}$ hour < $\frac{3}{4}$ hour < 1 hr 10 mins < 1 hr $\frac{1}{4}$ mins

4 Fill in the table.

Amount of time

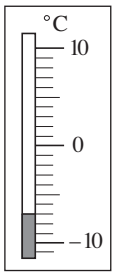
Part of it	1 hour	2 hours	5 hours	6 hours	8 hours	9 hours	10 hours
$\frac{1}{2}$	30 min	1 hour	2 hr 30	3 hours	4 hours	4 hr 30	5 hours
$\frac{1}{4}$	15 min	30 min	1 hr 15	1 hr 30	2 hours	2 hr 15	2 hr 30
$\frac{1}{5}$	12 min	24 min	1 hr	1 hr 12	1 hr 36	1 hr 48	2 hours
$\frac{1}{10}$	6 min	12 min	30 min	36 min	48 min	54 min	1 hour
$\frac{3}{4}$	45 min	1 hr 30	3 hr 45	4 hr 30	6 hours	6 hr 45	7 hr 30
$\frac{3}{5}$	36 min	1 hr 12	3 hours	3 hr 36	4 hr 48	5 hr 24	6 hours
$\frac{3}{10}$	18 min	36 min	1 hr 30	1 hr 48	2 hr 24	2 hr 42	3 hours

5 In my right-hand pocket I have some £1 coins. In my left-hand pocket I have the same number of £2 coins and a £5 note. How much could be in my pockets?

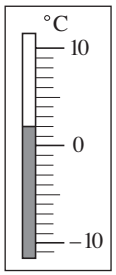
R (£)	0	2	3	4	5	6	7	8	9	10	11	12	13
L (£)	5	9	11	13	15	17	19	21	23	25	27	29	31

1

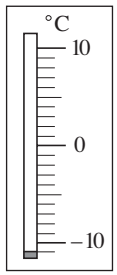
Write the temperature below each thermometer.

a) 

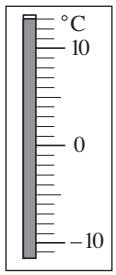
−7 °C

b) 

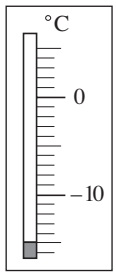
2 °C

c) 

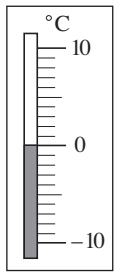
−11 °C

d) 

13 °C

e) 

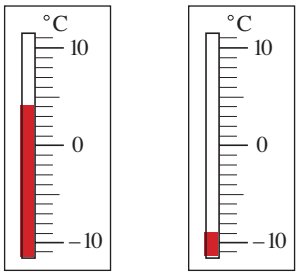
−15 °C

f) 

0 °C

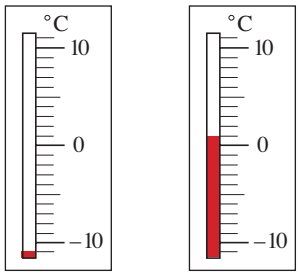
2

Colour the temperatures on the thermometers. Fill in the missing items.

a) 

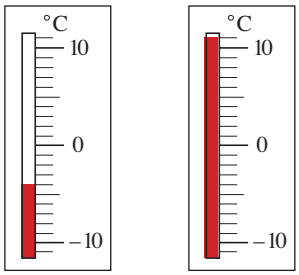
4 °C [>] −9 °C

13 °C

b) 

−11 °C [<] 1 °C

12 °C

c) 

−4 °C [<] 11 °C

15 °C

3

Which temperature is higher and by how many degrees? Fill in the missing items.

a) 8 °C [>] 5 °C 3 °C

2 °C [<] 9 °C 7 °C

0 °C [<] 3 °C 3 °C

7 °C [>] 0 °C 7 °C

b) −4 °C [<] −1 °C 3 °C

−5 °C [>] −10 °C 5 °C

−6 °C [<] 0 °C 6 °C

0 °C [>] −2 °C 2 °C

c) 3 °C [>] −2 °C 5 °C

−3 °C [<] 2 °C 5 °C

4 °C [>] −11 °C 15 °C

−4 °C [<] 11 °C 15 °C

4

Write these temperatures in increasing order.

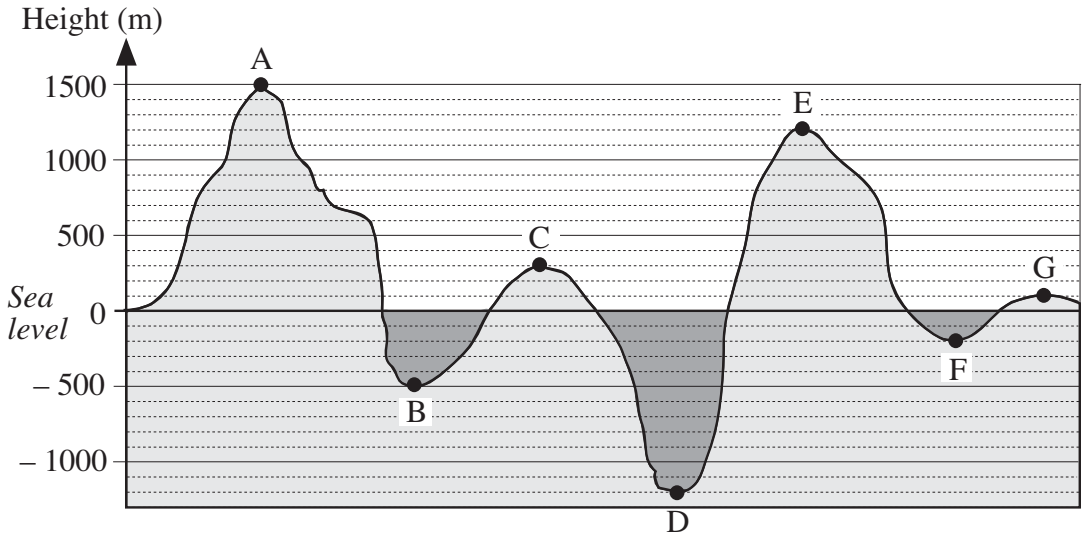
a) −120 °C, −31 °C, −40 °C, 0 °C, −63 °C, −2 °C, −14 °C, −0.6 °C

−120 °C < −63 °C < −40 °C < −31 °C < −14 °C < −2 °C < −0.6 °C < 0 °C

b) 65 °C, −1 °C, −8 °C, 6000 °C, −19 °C, 0 °C, 3 °C, −1.5 °C

−19 °C < −8 °C < −1.5 °C < −1 °C < 0 °C < 3 °C < 65 °C < 6000 °C

1 Read the heights of the mountains and the depths of the bottom of the sea from this geographical cross-section and write them in the boxes. *Sea level* is 0 m.



A: 1500 m B: –500 m C: 300 m D: –1200 m

E: 1200 m F: –200 m G: 100 m

Write the heights in decreasing order.

1500 m > 1200 m > 300 m > 100 m > –200 m > –500 m > –1200 m

2 Which level is higher and by how much? Calculate in your exercise book.

a) 251 m [>] 38 m — [213] m

4500 m [<] 8848 m — [4348] m

0 m [<] 1015 m — [1015] m

b) –305 m [<] –21 m — [284] m

–1100 m [>] –2500 m — [1400] m

0 m [>] –402 m — [402] m

c) 42 m [>] – 15 m — [57] m

–637 m [<] 40 m — [677] m

– 18 m [<] 19 m — [37] m

3 Complete the sentences.

a) The greater of two positive numbers is the one which is .further. . . . . from. zero.

b) The greater of two negative numbers is the one which is nearer .zero. . . . .

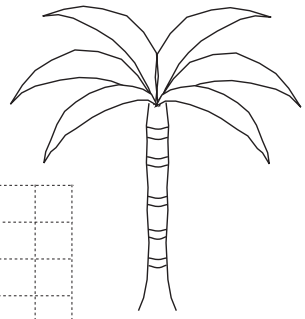
c) Any .positive. . . . . number is greater than any .negative. . . . . number.

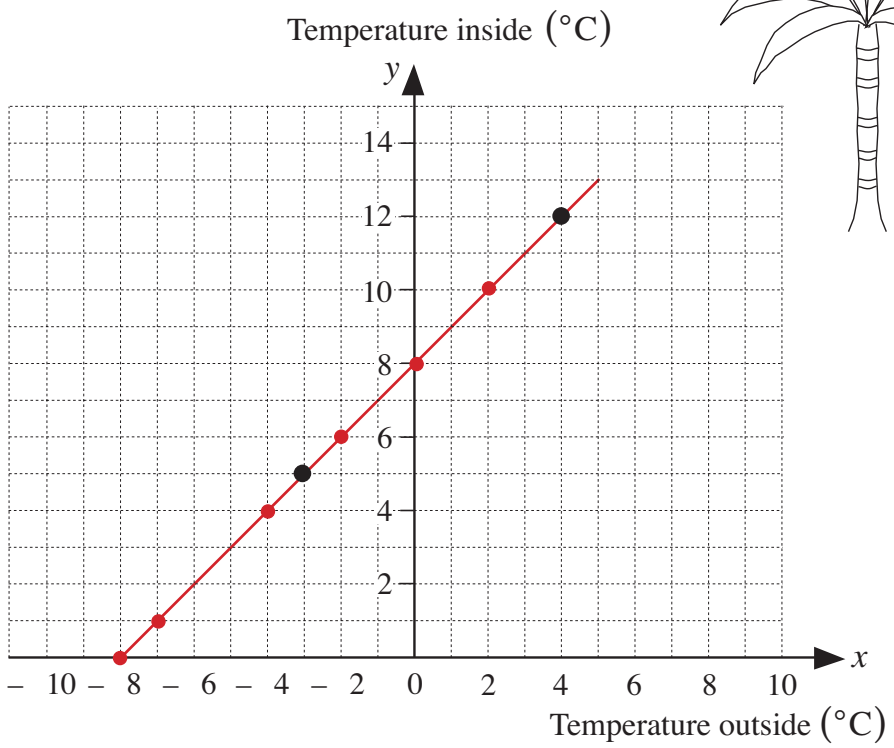
1 In a palm-house in the Botanical Gardens, the temperature is always kept 8°C higher than the temperature in the open air so that the palm trees will grow well.

a) Complete the table to show what the two temperatures could be.

Temperature outside (°C)	0	–3	–8	2	–7	4	–9	–2	5	– 4	–8
Temperature inside (°C)	8	5	0	10	1	12	– 1	6	13	4	0

b) Plot the data by drawing dots on the graph.

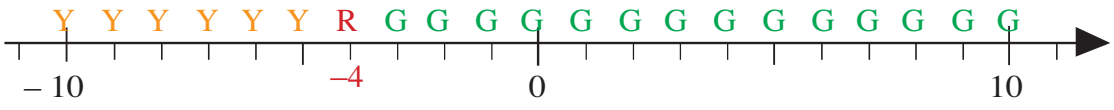




2 a) Mark in *green* the whole numbers greater than – 4.

b) Mark – 4 in *red*.

c) Mark in *yellow* the whole numbers less than – 4.



3 Continue the sequences for 3 terms in both directions.

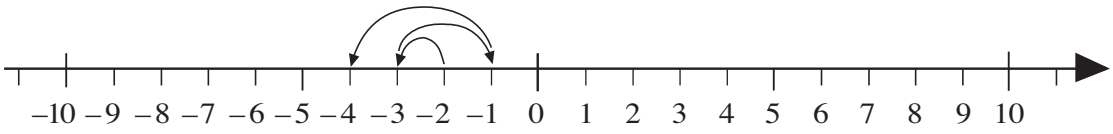
a) –15, –12, –9, – 6, – 3, 0, 3, 6, 9, 12, 15, 18,

b) –30, –23, –16, – 9, – 2, 5, 12, 19, 26, 33,

c) –90, –40, 10, 60, 110, 160, 210, 260, 310, 360,

d) –1, $-\frac{7}{9}$, $-\frac{5}{9}$, $-\frac{3}{9}$, $-\frac{1}{9}$, $\frac{1}{9}$, $\frac{3}{9}$, $\frac{5}{9}$, $\frac{7}{9}$, 1,

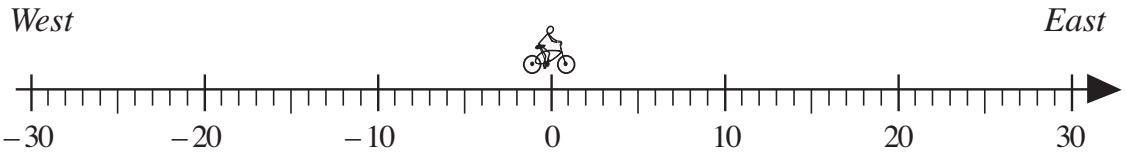
1 Follow the instructions on how to jump along the number line. Write down the numbers you land on.



Start from -2. Step 1 to the left, then 2 to the right, then 3 to the left, then 4 to the right, then 5 to the left, then 6 to the right, and so on.

$-2,\ -3,$ –1, –4, 0, –5, 1, –6, 2, –7, 3, –8, 4 . . . . . .

2



Mike starts at 0 km each time. Where does he get to on the number line if he cycles:

a) 16 km East, then 18 km West — –2 km

b) 12 km East, then 6 km West — 6 km

c) 13 km West, then 9 km East — –4 km

d) 25 km West, then 29 km East — 4 km

e) 82 km West, then 6 km West again — –88 km

f) 14 km East, then 14 km West? — 0 km

3 Each day, the receptionist in a hotel has to write down the number of guests arriving and departing.

a) Complete the bottom row of the table to show the increase or decrease in the number of guests staying at the hotel each day.

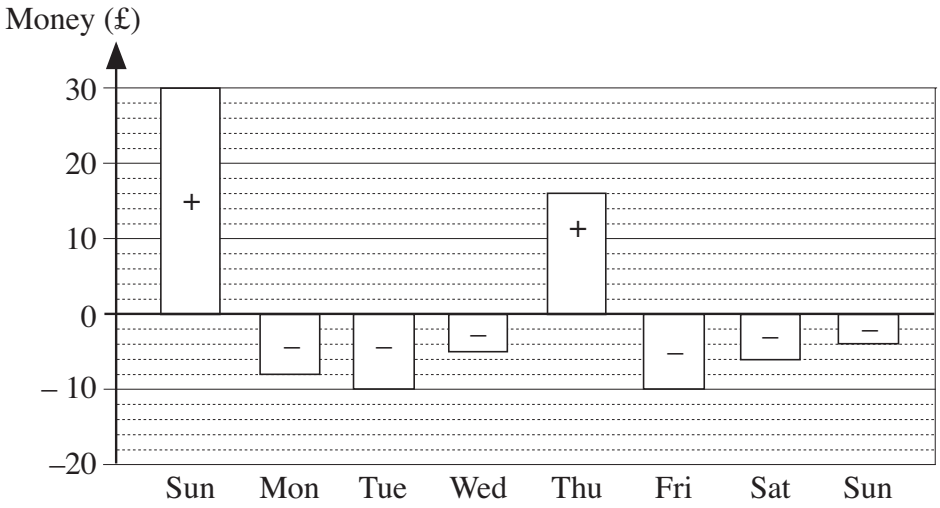
Arrived	25	16	19	15	21	0	18	0	7	22
Departed	18	23	19	0	27	2	23	11	5	10
Change	+ 7	–7	0	+15	–6	–2	–5	–11	+2	+12

b) Which change was the most positive? — 15

c) Which change was the most negative? — –11

d) What was the total change after the ten days? — 5

1 Charlie drew a diagram to show his income (+) and spending (–) last week.

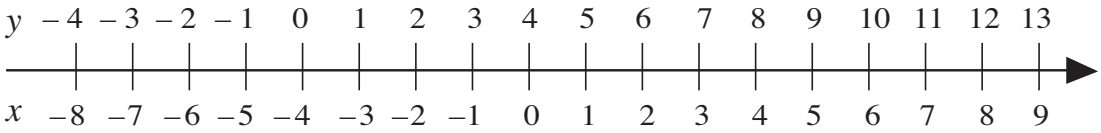


a) Fill in how much he earned or spent each day.

Sun.	*Mon.*	*Tue.*	*Wed.*	*Thu.*	*Fri.*	*Sat.*	*Next Sun.*
£30	– £8	– £10	– £5	£16	– £10	– £6	– £4

b) How much did he save last week? £3

2 Write additions and subtractions from the diagram. (e.g. –6 + 4 = –2)



Write the rule. $y = x + 4$ $x = y - 4$ $4 = y - x$

3 Complete the drawings so that the money is equal to the balance given.

a) £0: (1) (1) [–1] (1) [– 1] [– 1]

b) £6: (1) (1) [–1] (1) (1) (1) (1) (1)

c) – £4: [–1] [–1] (1) [– 1] [– 1] [– 1]

d) –£5: [–1] [–1] [–1] [–1] [–1] [–1] (1)

e) £3: [–1] (1) (1) (1) (1)

f) – £6: (1) [– 1] (1) [– 1] [– 1] [– 1] [– 1] [– 1] [– 1] [– 1] [– 1]

4 How much money does each person really have?

Alan has £16 but owes £3. £13

Betty has £40 but owes £25. £15

Cindy has £24 but owes £25. – £1

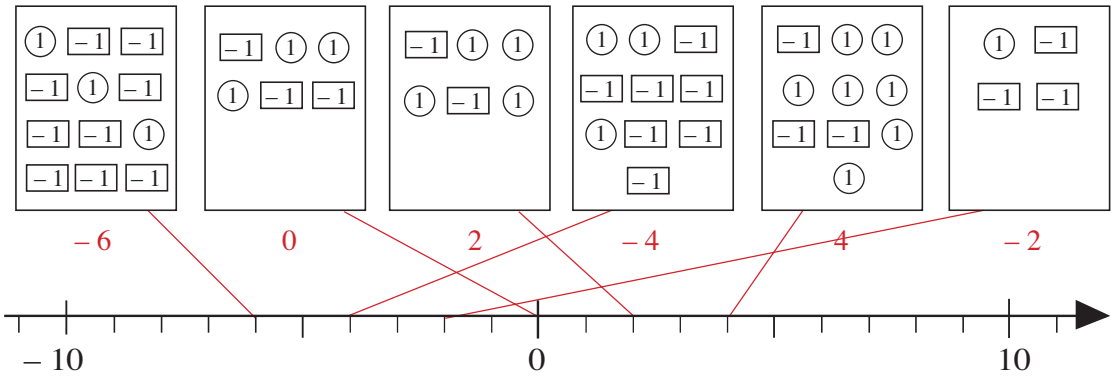
Daniel owes £39 and has £39. 0

Ella has debts of £100 but has £1000 in her bank account. £900

Freddie has £10.50 in his piggy bank but owes his sister £2.50. £8

George has £2.20 in cash but owes his Mum £3.20. – £1.00

1 What is the balance in each box? Join up the boxes to the matching points on the number line.



List the balances in decreasing order. Write the rule for the sequence.

4 > 2 > 0 > −2 > −4 > −6 ..... *Rule*: −2 .....

2 Use the table to help you solve the additions. Write the rule in different ways.

a	−2	−1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
b	−10	−9	−8	−7	−6	−5	−4	−3	−2	−1	0	1	2	3	4	5	6	7

7 + 8 = 15 6 + 8 = 14 5 + 8 = 13 4 + 8 = 12 3 + 8 = 11 2 + 8 = 10

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

−5 + 8 = 3 −6 + 8 = 2 −7 + 8 = 1 −8 + 8 = 0 −9 + 8 = −1 −10 + 8 = −2

Rule: b = $a - 8$ a = $b + 8$ 8 = $a - b$

3 Start from zero each time and follow the instructions. Where do you end up?

a) Move 8 to the right, 5 to the left, 10 to the right, then 11 to the left. [2]

b) Move +5, −2, +3, −10 [−4]

c) 7 + (−3) + 2 + (−10) = [−4] d) −1 + 9 + 3 − 5 = [6]

4 How much is each person's balance? Write an addition about it.

Alan: £ [−20] (24) +£4 −20 + 24 = 4

Betty: £ (50) [−66] £−16 50 + −66 = −16

Cindy: £ (680) [−140] +£540 680 + −140 = 540

Daniel: £ [−88] (88) £0 −88 + 88 = 0

...

1

Continue the sequence. Write the rule you used.

Rule

a) $-53,\ -44,\ -35,\ -26,$ ..... $-17,\ -8,\ 1,\ 10,\ 19$ ..... [+ 9]

b) $8,\ 7.3,\ 6.6,\ 5.9,$ ..... $5.2,\ 4.5,\ 3.8,\ 3.1,\ 2.4$ ..... [− 0.7]

c) $-2\frac{1}{4},\ -2,\ -1\frac{3}{4},\ -1\frac{1}{2},$ ..... $-1\frac{1}{4},\ -1,\ -\frac{3}{4},\ -\frac{1}{2},\ -\frac{1}{4}$ ..... [$+\frac{1}{4}$]

d) $3\frac{2}{3},\ 3,\ 2\frac{1}{3},\ 1\frac{2}{3},$ ..... $1,\ \frac{1}{3},\ -\frac{1}{3},\ -1,\ -1\frac{2}{3}$ ..... [$-\frac{2}{3}$]

2

Pete noted his income and outgoings for the first week of the month in a table.

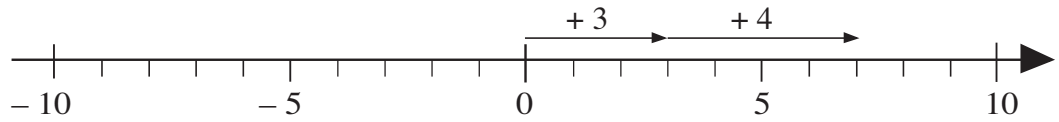
								Total
Income	300	520	450	730	240	430	0	2670
Outgoings	200	600	450	680	320	0	230	2480
Balance	100	− 80	0	50	− 80	430	−230	190

Help him to work out the balance each day and the totals at the end of the week.
Write the additions or subtractions in your exercise book.

3

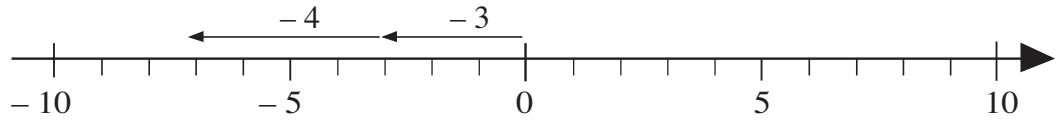
Write the moves along the number lines as additions.

a)



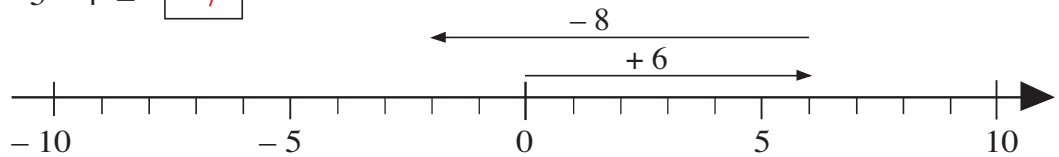
+ 3 + 4 = [7]

b)



– 3 – 4 = [– 7]

c)



[+ 6 – 8 = – 2]

4

Fill in the missing numbers. Check by drawing (1) and [– 1] for each part.

a) $5 + 2 =$ [7] b) $5 + (-2) =$ [3] c) $5 + (-8) =$ [– 3]

d) $-6 + 5 =$ [–1] e) $-6 + 6 =$ [0] f) $-6 + (-1) =$ [– 7]

1 Complete the drawings to match the balances. Write additions about them.

E.g:

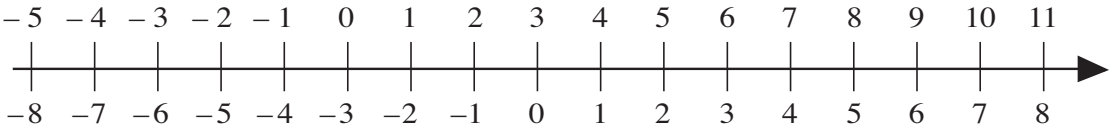
a) £0: ① ① ① −1 | −1 −1 | $3 + -3 = 0$

b) −£6: ① −1 −1 | −1 −1 −1 −1 −1 | $1 + -7 = -6$

c) £4: −1 ① −1 | ① ① ① ① ① | $6 + -2 = 4$

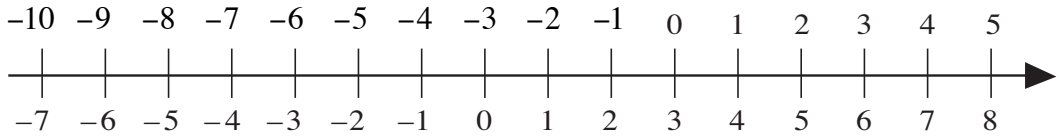
d) −£3: ① ① | −1 −1 −1 −1 −1 | $2 + -5 = -3$

2 Use the diagram to help you solve the additions.



$3 + 2 = 5$	$3 + (-2) = 1$	$3 + (-6) = -3$	$-2 + 3 = 1$
$3 + 1 = 4$	$3 + (-3) = 0$	$3 + (-7) = -4$	$-5 + 3 = -2$
$3 + 0 = 3$	$3 + (-4) = -1$	$3 + (-8) = -5$	$0 + 3 = 3$
$3 + (-1) = 2$	$3 + (-5) = -2$	$3 + (-9) = -6$	$2 + 3 = 5$

3 Use the diagram to help you solve the additions.



$-3 + (-7) = -10$	$-3 + (-3) = -6$	$-3 + 1 = -2$	$-3 + 5 = 2$
$-3 + (-6) = -9$	$-3 + (-2) = -5$	$-3 + 2 = -1$	$-3 + 6 = 3$
$-3 + (-5) = -8$	$-3 + (-1) = -4$	$-3 + 3 = 0$	$-3 + 7 = 4$
$-3 + (-4) = -7$	$-3 + 0 = -3$	$-3 + 4 = 1$	$-3 + 8 = 5$

4 Follow the example. Complete the sentences. Use the number line to help you.

a) 8°C is greater than 3°C by 5°C. $8 - 3 = 5$, $5 + 3 = 8$

b) 3°C is [less] than 8°C by 5°C. $3 - 8 =$ [−5], [−5] $+ 8 = 3$

c) 8°C is greater than 0°C by [8°C]. $8 - 0 =$ [8], [8] $+ 0 = 8$

d) 3°C is greater than −2°C by [5°C]. $3 - (-2) =$ [5], [5] $+ (-2) = 3$

e) −2°C is less than 3°C by [5°C]. $-2 - 3 =$ [−5], [−5] $+ 3 = -2$

f) −2°C is [greater] than −5°C by 3°C. $-2 - (-5) =$ [3], [3] $+ (-5) = -2$

1 What should be put betwen the digits 3 and 4 to make a number which is greater than 3 but less than 4?

3 $\boxed{\cdot}$ 4

2 Which is more? How many more? Fill in the missing signs and differences.

a) i) 4 $\boxed{<}$ 6 ... 2 ...

ii) -4 $\boxed{>}$ -6 ... 2 ...

iii) $\frac{1}{4}$ $\boxed{>}$ $\frac{1}{6}$ ... $\frac{1}{12}$ ...

iv) 0.4 $\boxed{<}$ 0.6 ... 0.2 ...

b) i) 8 $\boxed{<}$ 12 ... 4 ...

ii) -8 $\boxed{>}$ -12 ... 4 ...

iii) $\frac{1}{8}$ $\boxed{>}$ $\frac{1}{12}$ ... $\frac{1}{24}$ ...

iv) 0.8 $\boxed{>}$ 0.12 ... 0.68 ...

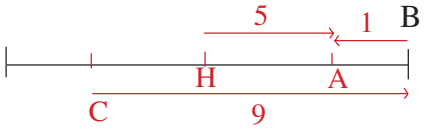
3 The lengths of the sides of a triangle are 3.5 cm, 19 mm and $1\frac{1}{2}$ cm.

What is the length of its perimeter?

Answer: ... 6.9 cm ...

4 *Bob Bunny* lives 1 km from *Adam Ant*.
Clark Crow lives 9 km from *Bob Bunny*.
Henry Hedgehog lives 3 km from *Clark Crow*.
Adam Ant lives 5 km from *Henry Hedgehog*.

Draw a diagram.

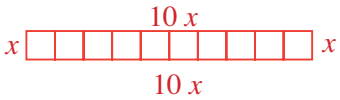


How far away does *Clark Crow* live from *Adam Ant*?

Answer: ... 8 km ...

5 The perimeter of a rectangle is 154 cm. We can cut the rectangle into 10 **congruent** squares by drawing lines parallel to its sides.

What is the area of the rectangle? (Draw a diagram to help you.)



Answer: ... 490 cm^2 ...

6 The product of four adjacent natural numbers is 3024. What are these numbers?

Answer: ... 6, 7, 8, 9 ...

1 How many different 3-digit numbers can you make from these number cards?

1 2 3 4 5

a) Continue the list.

123, 124, 125, 132, .134, 135, 142, 143, 152, 153, 154 . . . . . .

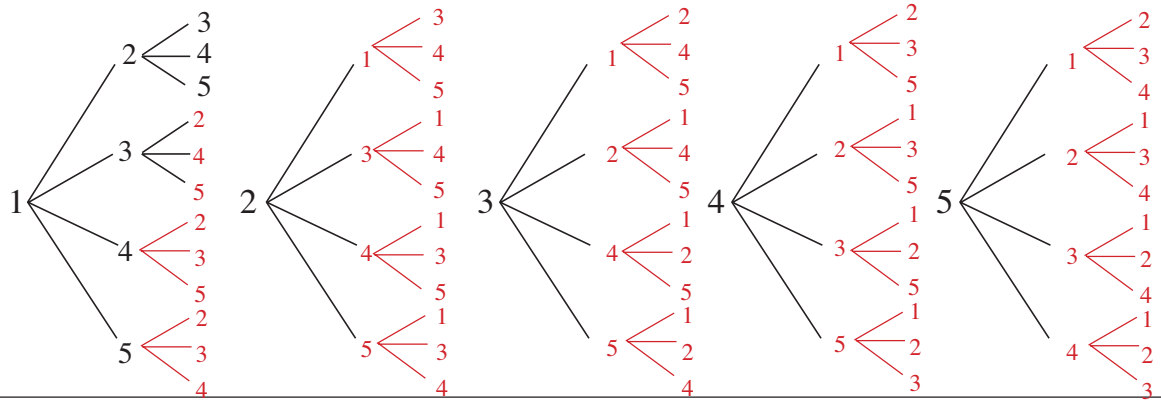
213, 214, 215, .231, 234, 235, 241, 243, 245, 251, 253, 254 . . . . . .

312, 314, .315, 321, 324, 325, 341, 342, 345, 351, 352, 354 . . . . . .

412, 413, 415, 421, 423, 425, 431, 432, 435, 451, 452, 453 . . . . . .

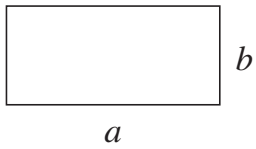
512, 513, 514, 521, 523, 524, 531, 532, 534, 541, 542, 543 . . . . . .

b) Continue drawing the tree diagram.



2 Calculate the perimeter and area of this rectangle if

a = 21 cm, b = 150 mm.



P = (21 + 15) × 2 = 2 × 36 = 72 cm . . . . . .

A = .315 cm^2. . . . . .

3 What is the smallest positive whole number which is exactly divisible by 1, 2, 3, 4 and 5?

60

4 In an opaque bag, there are 10 *black* and 30 *white* marbles.

What is the smallest number of marbles you must take out of the bag (with your eyes closed) to be **certain** of getting 2 marbles which are the same colour?

3

5 List the numbers between 999 and 10 000 which have 2 as the sum of their digits.

1001, 1010, 1100, 2000

1 How many different 3-digit numbers can you make with the digits 1, 2, 3 or 4?

a) Continue the list.

111, 112, 113, 114, 121, 122, 123, 124, 131, 132, 133, 134, 141, 142, 143, 144

211, 212, 213, 214, 221, 222, 223, 224, 231, 232, 233, 234, 241, 242, 243, 244

311, 312, 313, 314, 321, 322, 323, 324, 331, 332, 333, 334, 341, 342, 343, 344

411, 412, 413, 414, 421, 422, 423, 424, 431, 432, 433, 434, 441, 442, 443, 444

b) Draw a tree diagram in your exercise book to show all the possibilities.

2 Write the smallest natural multiple of 2, 3, 4, 5 and 6. 60

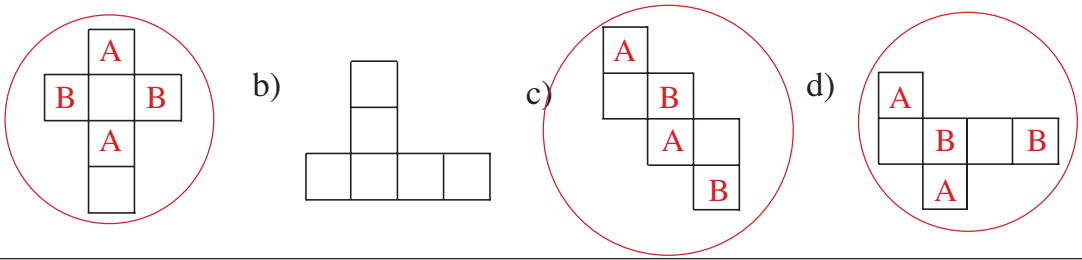
3 A hard-working tailor in *Wonderland* was given a 14 m length of magic material. Each day he had to cut 2 m from it with magic scissors. While he was cutting he could make a wish and his wish would be granted.

How many wishes could the tailor make? 6

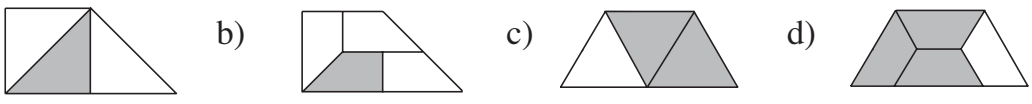
4 A patient in a hospital has to take a pill every half an hour.

How much time will be needed for him to take 5 pills? 2 hours

5 Circle the nets which can make a cube. Colour their opposite faces in the same colour.



6 What part of each shape has been shaded?



a) $\frac{1}{3}$ b) $\frac{1}{4}$ c) $\frac{2}{3}$ d) $\frac{3}{4}$

1 In how many different ways can you lay out 3 *red* and 2 *blue* eggs in a row?

Cotinue the list. RRRBB, RRBRB, RRBBR, RBRRB, RBRBR, RBBRR,

BRRRB, BRRBR, BRBRR, BBRRR

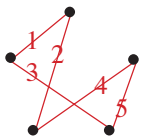
2 List the numbers btween 999 and 3000 which have 3 as the sum of their digits.

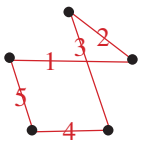
1002, 1011, 1020, 1101, 1110, 1200, 2001, 2010, 2100

3 Five children are taking part in a chess competition. Each child has to play each of the others. How many games have been played when each child has played

a) 2 games

Trials:

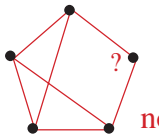




5

b) 3 games?

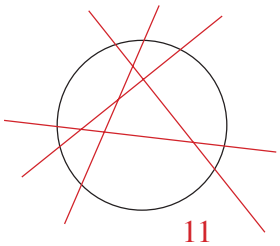
Trials:



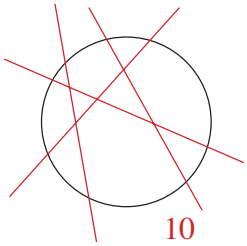
not possible

4 What is the most number of parts you can divide a circle into by drawing 4 lines?

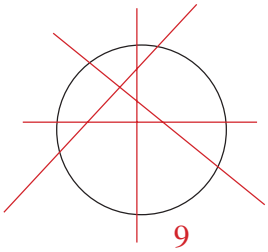
Trials:



11



10



9

11

5 Can the sum of 3 adjacent natural numbers be these numbers? If so, write an addition to show it. If not, give your reason. The number has to be divisible by 3.

a) 2000 × b) 2001 ✓ c) 2002 ×

666 + 667 + 668

6 A 100 m long train passes completely through a 200 m long tunnel in exactly 1 quarter of a minute.

If the train travels at a steady speed, how many km does it cover every hour?

Answer: 72 km every hour