1 Write these numbers in words.

a) 3210 three thousand two hundred and ten

b) 7004 seven thousand and four

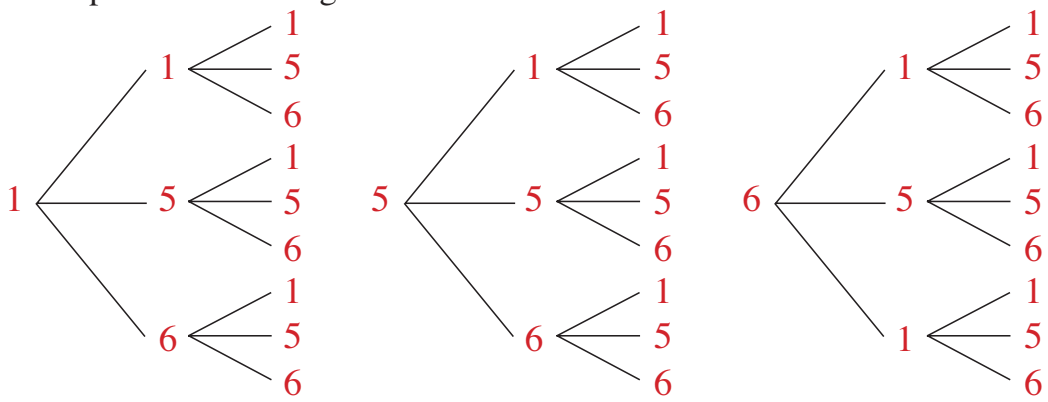
c) 2300 two thousand three hundred

d) 995 nine hundred and ninety five

e) 1068 one thousand and sixty eight

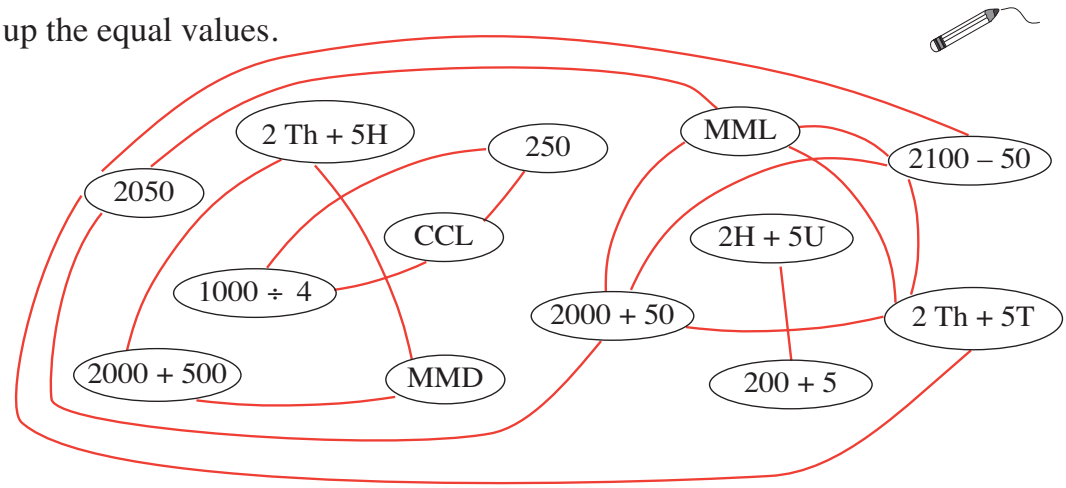
2 How many 3-digit numbers can you make from these digits? 5 6 1

a) Complete the tree diagrams.



b) List the numbers. 111, 115, 116, 151, 155, 156, 161, 165, 166,
511, 515, 516, 551, 555, 556, 561, 565 566,
611, 615, 616, 651, 655, 656, 661, 665, 666
27 numbers (order may vary)

3 Join up the equal values.



4 Continue the sequence.

a) 990, 885, 780, 675, 570, 465, 360, 255, 150, 45 . . . (– 105)

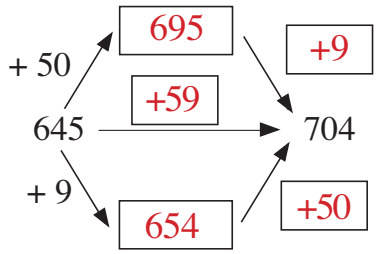
b) MMDXV, MMCCLX, MMV, MDCCL, MCDXCV, MCCXL, CMLXXXV
(– 255)

1 Practise addition and subtraction.

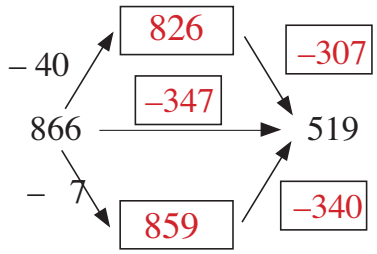
a)	653 + 25 =	678	b)	200 – 25 =	175	c)	109 + 9 =	118
	394 + 37 =	431		645 – 40 =	605		376 + 33 =	409
	116 + 93 =	209		749 – 550 =	199		900 – 542 =	358
	725 + 108 =	833		853 – 54 =	799		2000 + 11 =	2011
	1010 + 29 =	1039		210 – 82 =	128		1550 – 440 =	1110

2 Fill in the missing numbers and signs.

a)



b)



3 Practise multiplication.

a)	40 × 3 =	120	b)	70 × 7 =	490	c)	20 × 8 =	160
	2 × 70 =	140		3 × 90 =	270		400 × 0 =	0
	61 × 8 =	488		26 × 4 =	104		30 × 10 =	300
	25 × 6 =	150		91 × 9 =	819		100 × 10 =	1000
	17 × 4 =	68		85 × 5 =	425		110 × 11 =	1210

4 Complete the table. Write the rule in different ways.

a	840	360	690	1224	749	816	1535	0
b	20	10	30	12	7	1	5	25
c	42	36	23	102	107	816	307	0

a = $b \times c$ b = $a \div c$ except when $c = 0$ c = $a \div b$

5 David had a large box of sweets. He gave 15 sweets to each of his 6 friends and had 25 sweets left. How many sweets were in the box before David opened it?

115 sweets

1 Write the whole numbers up to 1000 which have 4 as the sum of their digits.

4, 13, 22, 31, 40, 103, 112, 121,

130, 202, 211, 220, 301, 310, 400

2 Study the numbers. Are the statements true or false? Write T or F in each box.

a) All the even numbers are multiples of 4. F

b) All the odd numbers are divisible by 9. T

c) There are no whole tens. F

d) All the odd numbers divisible by 5 have 5 as the units digit. T

4	100	27	76
243		114	
	45		135

3 Write these numbers in the correct set.

0, 9, 103,
99, 6, 49,
160, 669, 60,
20, 207, 900,
63, 2007, 450

The number is	even	odd
divisible by 9	0, 450, 900	9, 99, 207, 63, 2007
not divisible by 9	6, 160, 60, 20	103, 49, 669

4 Fill in the missing digits.

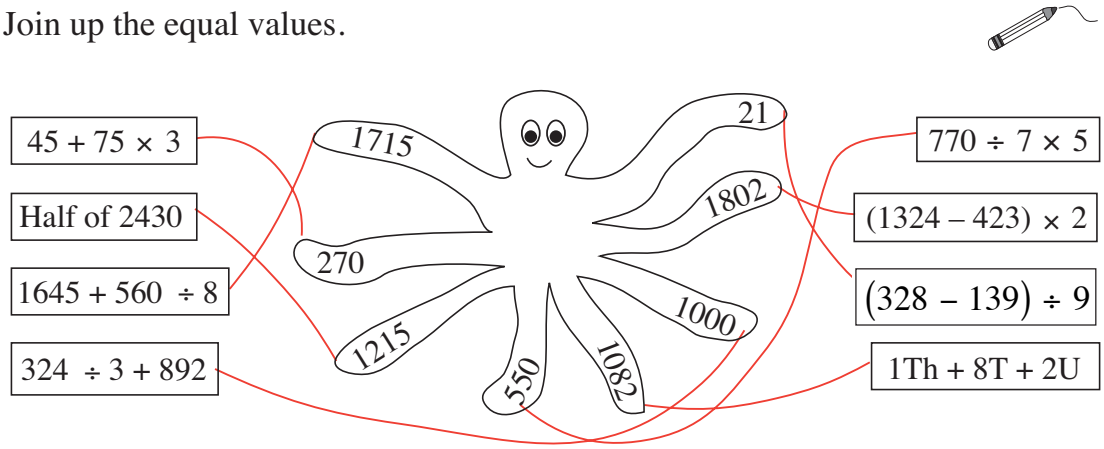
a)
	2	6	7
+	3	5	2
	6	1	9

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

c)
	9	8	8
–	4	3	6
	5	5	2

d)
	8	5	1
–	3	6	3
	4	8	8

5 Join up the equal values.



1 Do the calculations in your exercise book. Write the answers in the boxes.

a) Which number is four times as much as 164? **656**

b) Four times a number is 164. What is the number? **41**

c) Which number is 1 quarter of 456? **114**

d) One quarter of a number is 456. What is the number? **1824**

2 Complete the tables. Write the rules in different ways.

a)

a	5	120	78	25	140	12	45	240	199	182
b	235	120	162	215	100	228	195	0	41	58

$a = 240 - b$ $\qquad$ $b = 240 - a$

b)

x	7	2	100	5	20	0	4	9	5	70
y	49	14	700	35	140	0	28	63	35	490

$x = y \div 7$ $\qquad$ $y = 7x$ $(7 \times x)$

c)

u	5	20	50	10	25	100	4	200	40	1
v	40	10	4	20	8	2	50	1	5	200

$u = 200 \div v$ $\qquad$ $v = 200 \div u$

d)

m	725	40	1205	75	600	1000	999	1	1850	1901
n	1275	1960	795	1925	1400	1000	1001	1999	150	99

$m = 2000 - n$ $\qquad$ $n = 2000 - m$

3 List the positive whole numbers which make the inequalities true.

a) $10 \times 100 < \square < 201 \times 5$ $\qquad$ $\square$: 1001, 1002, 1003, 1004

b) $125 \div 5 \leq \otimes < 210 \div 7$ $\qquad$ $\otimes$: 25, 26, 27, 28, 29

c) $4 \times 60 - 4 \times 58 > \cap$ $\qquad$ $\cap$: 1, 2, 3, 4, 5, 6, 7

d) $30 \times 10 < \pentagon \leq 912 \div 3$ $\qquad$ $\pentagon$: 301, 302, 303, 304

4 A baker needs 7 eggs to make a cake. He has 150 eggs.
How many cakes can he bake and how many eggs will be left over?

Answer: The baker can make 21 cakes with 3 eggs left over.

1 The sum of any two adjacent numbers is the number directly above them.
Fill in the missing numbers.

a)

	CLXX		
LXXX		XC	
L	XXX		LX
XL	X	XX	XL

b)

	CCCL		
CLXXV		CLXXV	
LXXV	C		LXXV
XXV	L	L	XXV

2 Fill in the missing quantities.

a) 275 m + 420 m = 695 m

821 cm + 275 cm = 10 m 96 cm

1 km 75 m – 620 m = 455 m

427 m + 720 m = 1 km 147 m

72 mm + 99 mm = 17 cm 1 mm

b) 27 cl + 1260 cl = 12 litres 87 cl

1 litre 27 cl – 47 cl = 80 cl

1 litre 226 ml + 874 ml = 2 litres 10 cl

1257 ml + 874 ml = 2 litres 131 ml

c) 281 g + 322 g = 603 g

470 g + 833 g = 1 kg 303 g

1 kg 57 g + 233 g = 1 kg 290 g

1 kg 242 g – 1051 g = 191 g

3 The Statue of Liberty in New York is 93 metres high. The Eiffel Tower in Paris is 207 m higher. How tall is the Eiffel Tower?

Height SL = 93 m Height ET = 93 m + 207 m = 300 m

The Eiffel Tower is 300 m high.

4 In a school hall, there are 332 chairs stacked against the wall. They have to be arranged in 8 rows, with the same number of chairs in each row.

If 12 chairs are broken, how many chairs will be in each row?

$(332 - 12) \div 8 = 320 \div 8 = 40$

There will be 40 chairs in each row.

1 Continue the sequences.

a) 800, 400, 200, 100, 50, 25, 12 and a half

b) 410, 520, 630, 740, 850, 960, 1070, 1180

c) 1, 4, 9, 16, 25, 36, 49, 64, 81, 100

d) 800, 698, 596, 494, 392, 290, 188, 86, –16

e) 5, 15, 10, 25, 15, 35, 20, 45, 25, 55

2 Which is more and by how much? Fill in the missing signs and quantities.

a) 1 m 6 cm [<] 182 cm [76 cm]

b) 345 minutes [>] 5 hours 40 minutes [5 minutes]

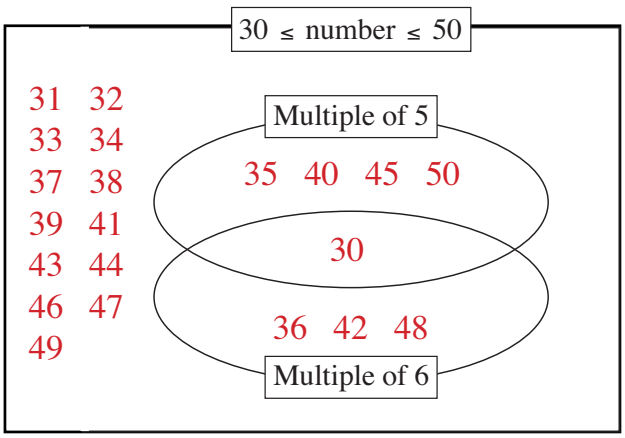
c) 59 days [=] 8 weeks 3 days [ ]

d) 182 mm [<] 1 m 57 mm [875 mm]

3 Work out the rule and complete the table. *Rule*: $c = 5 \times a + b$

										E.g:
a	1	80	25	21	12	8	9	31	18	100
b	5	5	20	6	48	12	19	15	10	0
c	10	405	145	111	108	52	64	170	100	500

4 Write the whole numbers from 30 to 50 in the correct set.



5 a) An express train can travel 250 km every hour. How far can it travel in

i) 4 hours 1000 km ii) 2 and a half hours? 625 km

b) An athlete can run 100 m in 12 seconds. How far can the athlete run in

i) 6 seconds 50 m ii) 1 minute? 500 m

1 Fill in the missing numbers.

a) $6475 = 6000 + \boxed{400} + 75$

b) $27\,H = 2000 + \boxed{700}$

c) $3297 = 3000 + 200 + \boxed{90} + 7$

d) $1345 + \boxed{655} = 2000$

e) $2910 + 1000 = \boxed{4910} - 1000$

f) $4290 - 500 = \boxed{3290} + 500$

2 The distance travelled by a plane from New York to London is 5586 km.

What is this distance rounded to the nearest:

a) 10 km: $\boxed{5590 \text{ km}}$

b) 100 km: $\boxed{5600 \text{ km}}$

c) 1000 km? $\boxed{6000 \text{ km}}$

3 Which is more and by how much? Fill in the missing signs and differences.

a) $3012 \times 2 \boxed{>} 2998 \times 2$ $\boxed{28}$

b) $2678 + 10 \boxed{<} 2691$ $\boxed{3}$

c) $4799 + 30 \boxed{>} 4820 - 30$ $\boxed{39}$

d) $7001 - 5 \boxed{>} 6896 + 10$ $\boxed{90}$

e) $2323 + 124 \boxed{>} 2423$ $\boxed{24}$

f) $5650 \boxed{>} 5750 - 101$ $\boxed{1}$

4 Write a plan and do the calculation in your exercise book. Write the answer here.

a) The difference between two numbers is 2790.
The smaller number is 3560. What is the other number? $\boxed{6350}$

b) The difference between two numbers is 2790.
The larger number is 3560. What is the other number? $\boxed{770}$

5 a) Write these numbers in increasing order.

3601, 3016, 3106, 3061, 3610 ... 3016, 3061, 3106, 3601, 3610 ...

b) Write these numbers in decreasing order.

2999, 2099, 3001, 2909, 3010, 2990, 3100, 2090

... 3100, 3010, 3001, 2999, 2990, 2909, 2099, 2090 ...

1 Fill in the missing digits.

a)
	2	2	6	7
+	5	5	7	1
	7	8	3	8

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

c)
	2	8	9	5
−	1	6	0	3
	1	2	9	2

d)
	6	8	2	7
−	4	3	8	2
	2	4	4	5

2 The population of the village of *Lakeside* is 5486. What is its population rounded to the nearest:

a) 10 — 5490

b) 100 — 5500

c) 1000? — 5000

3 Solve the problems in your exercise book.

a) There were 6020 people at a football match.
3860 were men, 1020 were women and the rest were children.
How many children were at the match?
There were 1140 children at the match.

b) A farmer has 1025 ducks. He has 295 more chickens than ducks.
How many chickens and ducks does he have altogether?
The farmer has 2345 ducks and chickens altogether.

c) There are 6345 beads in a bag. 3016 are white, 2107 are red and the rest are blue. How many blue beads are in the bag?
There are 1222 blue beads in the bag.

4 Using each of the digits 1, 4, 5 and 8 once only, write:

a) the largest possible number — 8541

b) the smallest possible number — 1458

c) the largest possible even number — 8514

d) the smallest possible odd number — 1485

e) two 2-digit numbers which have the smallest difference. ..51.. and ..48..

5 Fill in the numbers missing from the snakes. Write the rule in their heads.

a) 910, 997, 1084, 1171, 1258, 1345, 1432, 1519, 1606, 1693, +87

b) 5555, 5505, 5455, 5405, 5355, 5305, 5255, 5205, 5155, 5105, −50

c) 7, 14, 42, 84, 252, 504, 1512, 3024, 9072, 18144, x2, x3

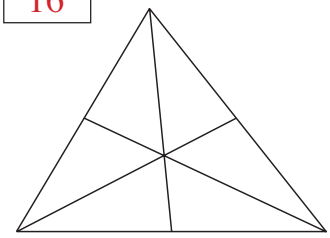
1

a) How many triangles can you see in this diagram? 16

b) How many triangles could you see in

i) 100 of these diagrams 1600

ii) 1000 of these diagrams? 16000



2

Fill in the missing numbers.

a) 4200 $\xrightarrow{\div 4}$ 1050 $\xrightarrow{\div 5}$ 210 $\xrightarrow{\div 6}$ 35 $\xrightarrow{\times 8}$ 280 $\xrightarrow{\times 5}$ 1400

b) 4200 $\xrightarrow{\div 10}$ 420 $\xrightarrow{\div 3}$ 140 $\xrightarrow{\div 4}$ 35 $\xrightarrow{\times 5}$ 175 $\xrightarrow{\times 6}$ 1050

c) 4200 $\xrightarrow{\div 7}$ 600 $\xrightarrow{\div 10}$ 60 $\xrightarrow{\div 5}$ 12 $\xrightarrow{\times 25}$ 300 $\xrightarrow{\times 2}$ 600

3

How many different results can you find? Use +, –, × or ÷ signs. 16 ways

1000 ☐ 10 ☐ 5 = ☐

List the operations and results in your exercise book. See Lesson Plan for list of operations.

4

Mr. Black bought 1000 kg of coal. He used about 75 kg each week.

a) How much coal had he used after 6 weeks? 75 kg x 6 = 450 kg

b) How much coal did he have left after 6 weeks? 1000 kg – 450 kg = 550 kg

c) After how many weeks might he run out of coal? Mr Black might run out of coal after 13 weeks

5

Practise multiplication. Complete the tables as quickly as you can!

×	2	4	6	8	10
2	4	8	12	16	20
4	8	16	24	32	40
6	12	24	36	48	60
8	16	32	48	64	80
10	20	40	60	80	100

×	1	3	5	7	9
1	1	3	5	7	9
3	3	9	15	21	27
5	5	15	25	35	45
7	7	21	35	49	63
9	9	27	45	63	81

×	1	3	5	7	9
2	2	6	10	14	18
4	4	12	20	28	36
6	6	18	30	42	54
8	8	24	40	56	72
10	10	30	50	70	90

6

How many times is the digit 8 used in all the whole numbers from 0 to 100?

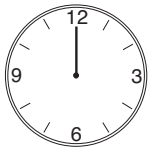
The digit 8 is used 20 times.

1

The minute hand is pointing to 12.

Compare the angle it turns with a right angle.

Write in the missing signs. (<, >, =)



a) After 5 minutes it has turned through an angle [<] a right angle.

b) After 10 minutes it has turned through an angle [<] a right angle.

c) After 15 minutes it has turned through an angle [=] a right angle.

d) After 25 minutes it has turned through an angle [>] a right angle.

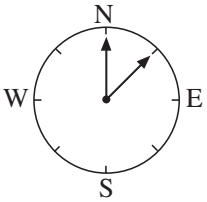
e) After 30 minutes it has turned through an angle [>] a right angle.

2

Complete the drawings and write how many right angles the arrow has turned if it:

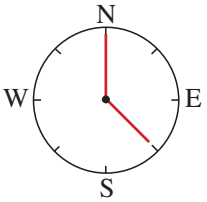
a) turns to the right:

i) from N to NE



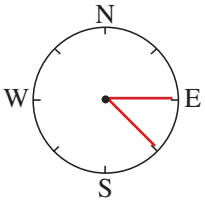
[half] right angle

ii) from N to SE



[1 and a half] right angles

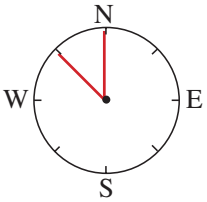
iii) from E to SE



[half] right angle

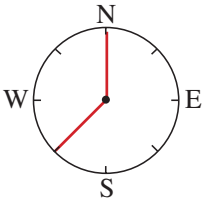
b) turns to the left:

i) from N to NW



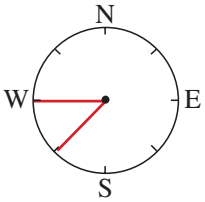
[half] right angle

ii) from N to SW



[1 and a half] right angles

iii) from W to SW



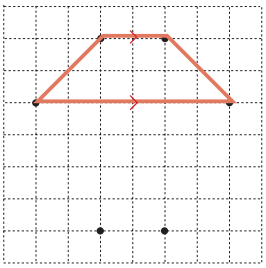
[half] right angle

3

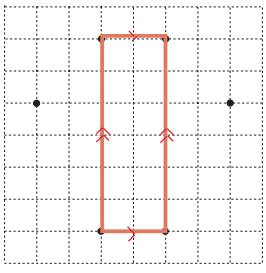
Join up 4 of the 6 points to make a quadrilateral which has:

a) only 1 pair of parallel sides

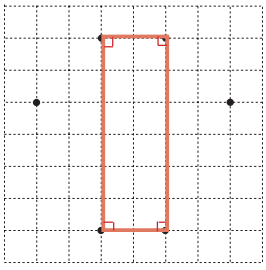
E.g:



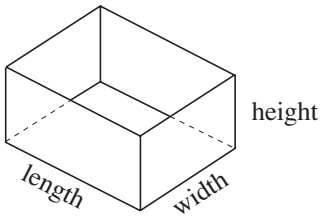
b) 2 pairs of parallel sides



c) 1 pair of parallel and 1 pair of perpendicular sides.

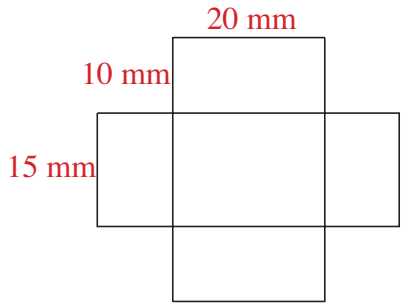


1



The net for this box has been drawn to a smaller scale.

Scale: 1 mm → 2 cm



Measure the net, then calculate the real length, width and height of the box.

Real length = 40 cm. Real width = 30 cm. Real height = 20 cm.

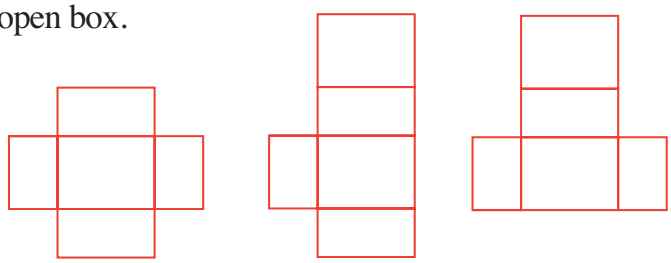
2

The edges of a cuboid-shaped box are 4 cm, 3 cm and 2 cm.
One of its faces is missing, so it is an open box.

Which of the faces could be missing?

Draw nets in your exercise book to show each case.

E.g:



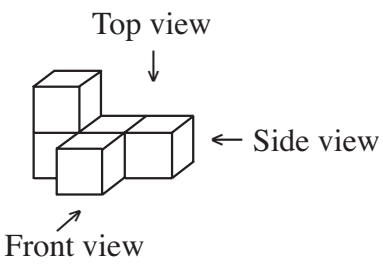
3

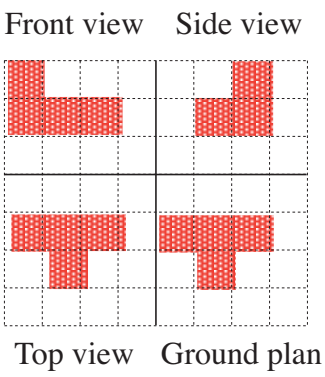
Practise calculation.

10 × 300 = 3000	0 × 1600 = 0	40 × 40 = 1600
90 × 30 = 2700	1500 ÷ 30 = 50	1970 ÷ 10 = 197
500 × 50 = 25 000	90 ÷ 2 = 45	100000 ÷ 200 = 500
300 × 80 = 24 000	1000 ÷ 5 = 200	1900 ÷ 1900 = 1
1000 × 11 = 11 000	660 ÷ 6 = 110	20000 ÷ 5000 = 4
1000 × 54 = 54 000	4900 ÷ 7 = 700	2000 ÷ 200 = 10
25 × 2000 = 50 000	8600 ÷ 200 = 43	2000 ÷ 500 = 4

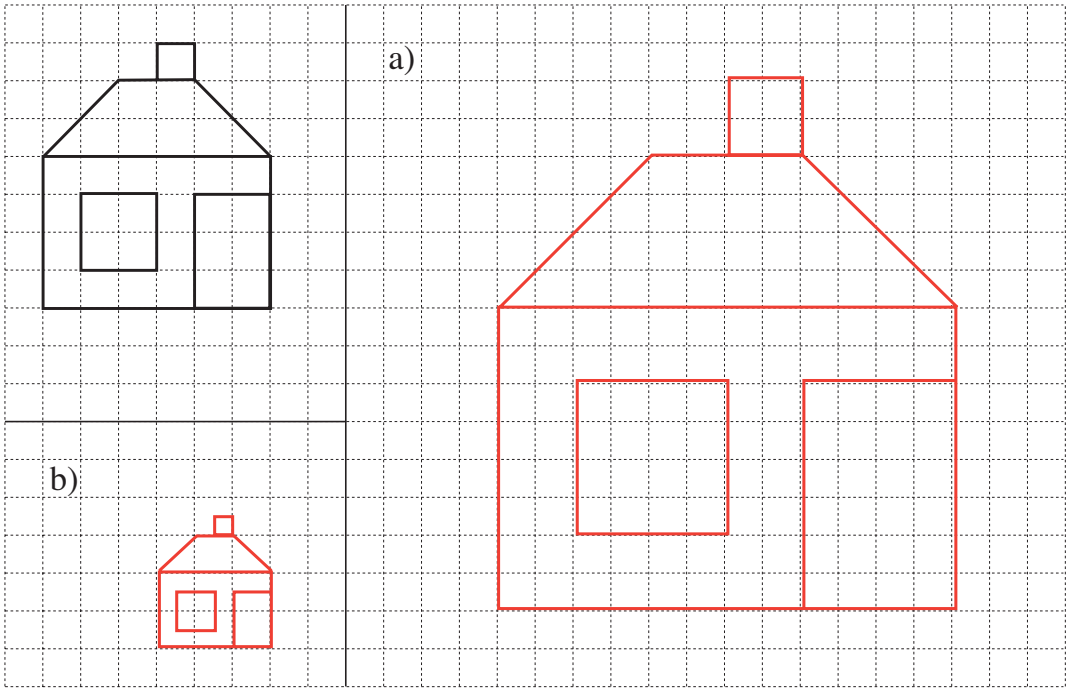
4

Imagine this solid. Draw how it would look from three different views.
Make a ground plan too.





1



a) **Enlarge** the house to twice its size. b) **Reduce** the house to half its size.

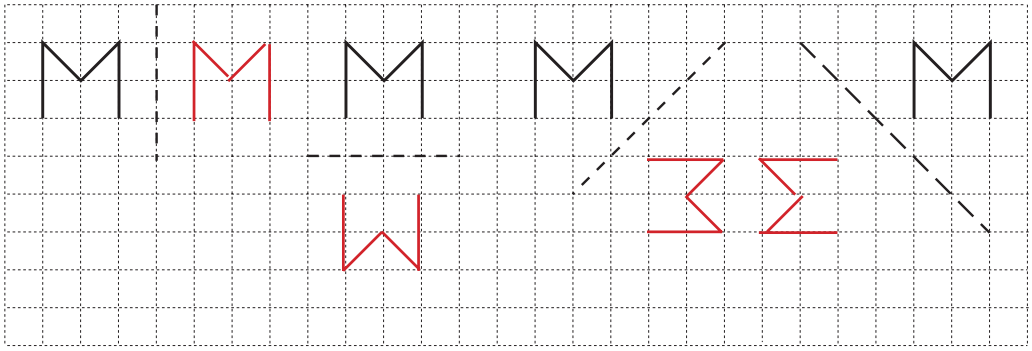
c) What is the area of:

i) the original house ii) the enlarged house iii) the reduced house?

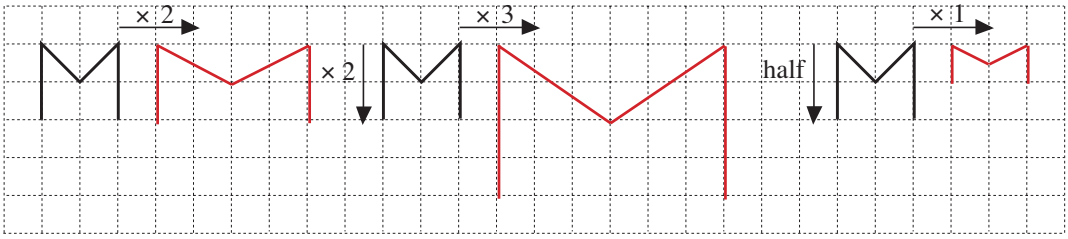
33 unit squares . . . 132 unit squares . . . 8 and a quarter unit squares . . .

2

a) **Reflect** the letter M in the given axis (mirror line).



b) **Stretch** the letter M in the direction shown by the arrows.



3

What is the area of a square which has 15 cm sides? 15 x 15 = 225 (cm^2) . . .

1 Fill in the missing quotients. Note how the dividends, divisors and quotients change.

a) $21 \div 7 = 3$ $210 \div 70 = 3$ $2100 \div 700 = 3$

$210 \div 7 = 30$ $2100 \div 70 = 30$ $21\,000 \div 700 = 30$

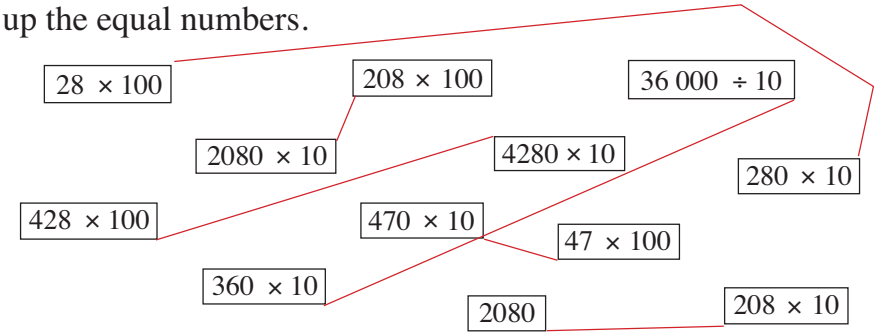
$2100 \div 7 = 300$ $21\,000 \div 70 = 300$ $21\,000 \div 7000 = 3$

b) $20 \div 5 = 4$ $200 \div 50 = 4$ $2000 \div 500 = 4$

$200 \div 5 = 40$ $2000 \div 50 = 40$ $20\,000 \div 500 = 40$

$2000 \div 5 = 400$ $20\,000 \div 50 = 400$ $20\,000 \div 5000 = 4$

2 Join up the equal numbers.



3 Every day in a school there are 7 lessons, each of which lasts for 45 minutes.

a) How many minutes each day are pupils in lessons? 315 minutes

b) How many minutes in a week are pupils in lessons? 1575 minutes

c) How many minutes in 12 weeks are pupils in lessons? 18900 minutes

4 Solve the problems in your exercise book.

a) What is the distance between 75 telegraph poles, set 53 metres apart?

The distance is 3922 m.

b) Three sons were left £10 000 in their father's will. The eldest was left £100 more than each of the other two sons.

How much money did each of the sons receive?

The eldest received £3400. The other two sons received £3300 each.

5 Write a number in each box to make the statement true.

a) $13 \times 1000 = 130 \times \boxed{100}$

$2500 \times 10 = 100 \times \boxed{250}$

$40 \times 100 = 1000 \times \boxed{4}$

b) $560 \times 10 = 2300 + \boxed{3300}$

$29 \times 100 = 3000 - \boxed{100}$

$17\,000 \div 100 = 10 \times \boxed{17}$

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

When Adam and Barry stand on the scales the reading is 47 kg.
When Adam and Clara stand on the scales the reading is 42 kg.
When Barry and Clara stand on the scales the reading is 45 kg.

a) What would the reading on the scales be if all 3 children stood on them?

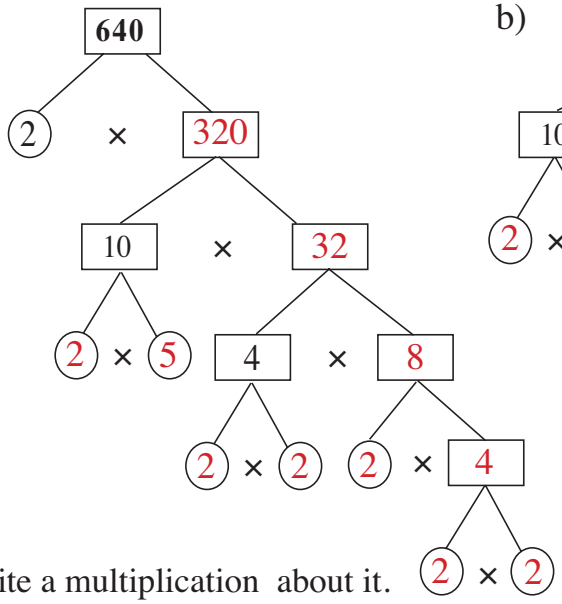
The reading on the scales would be 67 kg.

b) What does each child weigh?

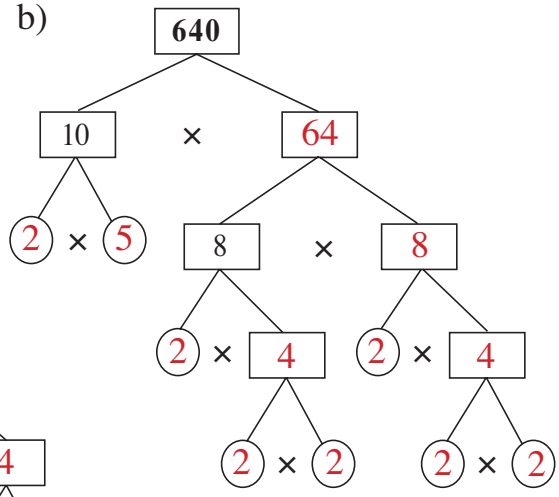
Adam weighs 22 kg., Barry weights 25 kg and Clara weighs 20 kg.

2 Break down 640 into its lowest factors in two ways.

a)



b)

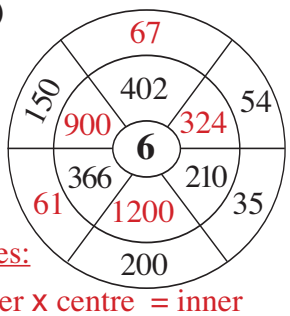


Write a multiplication about it.

640 = 2 x 2 x 2 x 2 x 2 x 2 x 2 x 5

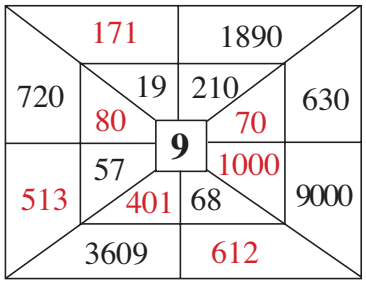
3 Work out the rule for each diagram. Fill in the missing numbers.

a)



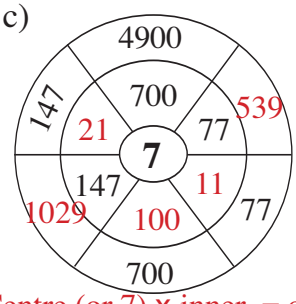
Rules:
Outer x centre = inner

b)



Outer ÷ inner = centre (or = 9)

c)



Centre (or 7) x inner = outer

4 *Mr. Clean* bought a washing machine for £521 and a spin drier for £278 less. He gave the cashier £800 in cash. How much change was he given?

£36

1 Do the calculations.

a) 2 km 740 m + 3 km 38 m = 5 km 778 m

b) 3 kg – 2 kg 860 g = 140 g

c) 1 hour 25 minutes + 2 hours 45 minutes = 4 hours 10 minutes

d) 4 hours 5 minutes – 2 hours 20 minutes = 1 hour 45 minutes

e) (2 litres 450 ml) × 2 = 4 litres 900 ml

f) (4 litres 50 ml) ÷ 3 = 1 litre 350 ml

g) (2 hours 43 minutes) × 2 = 5 hours 26 minutes

h) (3 hours 18 minutes) ÷ 2 = 1 hour 39 minutes

2 Fill in the missing signs. (>, <, =)

a) 3060 (>) 3006 b) 80 (<) 8000 ÷ 10 c) 21 306 (=) 21 406 – 100

d) 476 × 2 (<) 320 × 3 e) 32 178 (>) 22 178 + 1001 f) 8.5 (=) $9 - \frac{1}{2}$

3 An open-air concert was attended by 2569 people. The organisers had sold 1360 adult tickets, 226 children's tickets and the rest were sold to students.

a) How many students could have attended the concert?
983 students could have attended the concert.

b) If they actually sold 1100 student tickets, how many people were unable to get to the concert?
117 people were unable to attend the concert.

4 Fill in the missing numbers.

a) 2000 + [50] = 2050 b) 3000 + 400 + [80] = 3480

c) 886 – [80] = 806 d) 4066 – [2000] = 2066

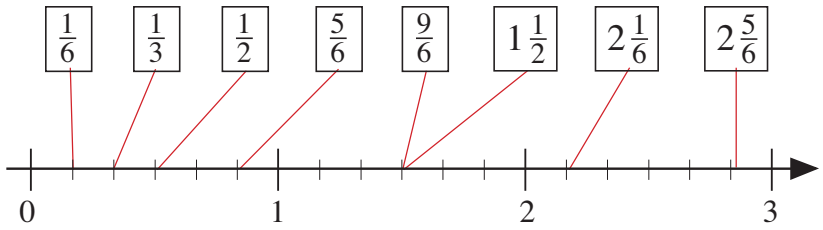
e) 2000 + [840] + 9 = 2849 f) 6271 – [1886] = 4385

5 Write the numbers as Roman numerals.

a) 1305 MCCCV b) 2020 MMXX c) 999 CMXCIX d) 652 DCLII e) 2001 MMI

f) 2504 MMDIV g) 1450 MCDL h) 1108 MCVIII i) 586 DLXXXVI j) 1263 MCCLXIII

1 Join up each fraction to the matching point on the number line.



2 Complete the fractions.

a) $\frac{1}{2} = \frac{\boxed{2}}{4} = \frac{4}{\boxed{8}} = \frac{\boxed{3}}{6} = \frac{\boxed{5}}{10} = \frac{10}{\boxed{20}} = \frac{\boxed{50}}{100} = \frac{\boxed{250}}{\boxed{500}}$ E.g:

b) $\frac{1}{4} = \frac{\boxed{4}}{16} = \frac{2}{\boxed{8}} = \frac{\boxed{5}}{20} = \frac{8}{\boxed{32}} = \frac{25}{\boxed{100}} = \frac{\boxed{100}}{\boxed{400}} = \frac{\boxed{50}}{\boxed{200}}$ E.g: E.g:

c) $\frac{1}{3} = \frac{2}{\boxed{6}} = \frac{\boxed{4}}{12} = \frac{3}{\boxed{9}} = \frac{\boxed{5}}{15} = \frac{\boxed{8}}{24} = \frac{\boxed{10}}{30} = \frac{100}{\boxed{300}} = \frac{\boxed{1000}}{\boxed{3000}}$ E.g:

3 Fill in the missing quantities.

a) 1 hour = 60 minutes

b) $\frac{1}{4}$ hour = 15 minutes

c) $1\frac{1}{2}$ hours = 90 minutes

d) $\frac{1}{5}$ hour = 12 minutes

e) $2\frac{1}{4}$ minutes = 135 seconds

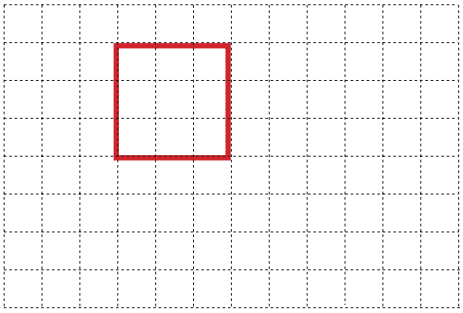
f) $\frac{3}{5}$ minute = 36 seconds

g) $1\frac{1}{6}$ minutes = 70 seconds

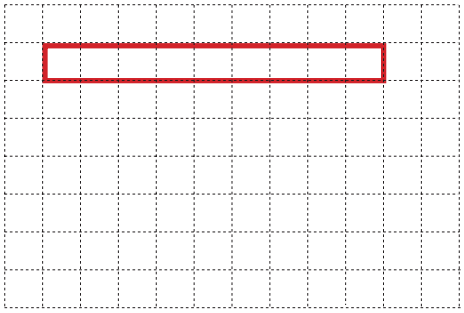
h) $\frac{1}{10}$ minute = 6 seconds

4 Draw a shape using 9 unit squares which has a perimeter length:

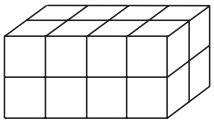
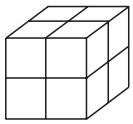
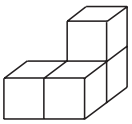
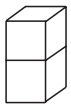
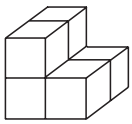
a) as small as possible (P = 12 units)



b) as large as possible. (P = 20 units)



1 Compare the solids to the 1 unit. Complete the table.

					
a)	$1 = \frac{16}{16}$	$\frac{8}{16} = \frac{1}{2}$	$\frac{4}{16} = \frac{1}{4}$	$\frac{2}{16} = \frac{1}{8}$	$\frac{6}{16} = \frac{3}{8}$
b)	$\frac{16}{8} = 2$	$1 = \frac{8}{8}$	$\frac{4}{8} = \frac{1}{2}$	$\frac{2}{8} = \frac{1}{4}$	$\frac{6}{8} = \frac{3}{4}$
c)	$\frac{16}{4} = 4$	$\frac{8}{4} = 2$	$1 = \frac{4}{4}$	$\frac{2}{4} = \frac{1}{2}$	$\frac{6}{4} = 1\frac{2}{4} = 1\frac{1}{2}$
d)	$\frac{16}{2} = 8$	$\frac{8}{2} = 4$	$\frac{4}{2} = 2$	$1 = \frac{2}{2}$	$\frac{6}{2} = 3$
e)	$\frac{16}{6} = 2\frac{4}{6} = 2\frac{2}{3}$	$\frac{8}{6} = 1\frac{2}{6} = 1\frac{1}{3}$	$\frac{4}{6} = \frac{2}{3}$	$\frac{2}{6} = \frac{1}{3}$	$1 = \frac{6}{6}$

2 Do the additions and subtractions.

a) 63 chairs + 58 chairs + 120 chairs = 241 chairs

b) 3 quarters + 2 quarters + 1 quarter = $1\frac{1}{2}$

c) $4q + 7q + 11q = 22q$

d) $\frac{3}{7} + \frac{2}{7} + \frac{4}{7} - \frac{5}{7} = \frac{4}{7}$

e) 312 chicks + 243 dogs – 250 chicks + 21 dogs = 62 chicks + 264 dogs (= 326 animals)

f) $4a + 6a + 8b - 5b = 10a + 3b$

g) $\frac{1}{2} + \frac{1}{4} + \frac{3}{4} + \frac{1}{2} = 2$

3 Fill in the missing fractions.

a) $\frac{1}{6} + \boxed{\frac{5}{6}} = 1$ $\quad \boxed{\frac{1}{4}} + \frac{3}{4} = 1$ $\quad \frac{4}{3} - \boxed{\frac{1}{3}} = 1$ $\quad 1 - \frac{2}{5} = \boxed{\frac{3}{5}}$

b) $\frac{3}{7} + \boxed{\frac{4}{7}} = 1$ $\quad \boxed{\frac{3}{8}} + \frac{5}{8} = 1$ $\quad \frac{7}{6} - \boxed{\frac{1}{6}} = 1$ $\quad 1 - \frac{4}{9} = \boxed{\frac{5}{9}}$

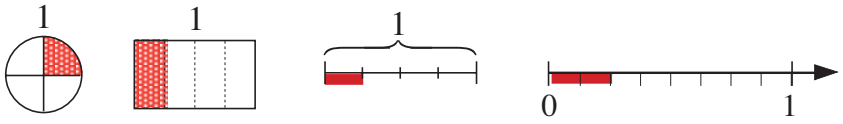
4 Solve the problems in your exercise book.

a) David ate 2 fifths of a 500 g bar of chocolate. How many grams did he eat?
David ate 200 g.

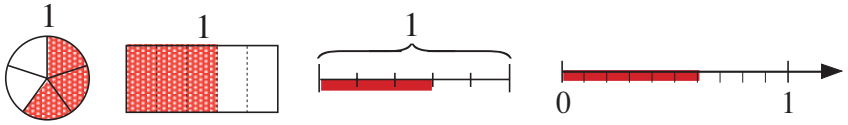
b) Marion spent £318, which was 2 thirds of her money. How much did she have at first?
Marion had £477 at first.

1 Show the fractions in different ways.

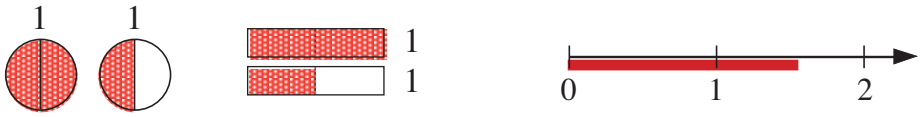
a) $\frac{1}{4}$



b) three fifths



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



2 Practise calculation.

a) $30 \times 4 = 120$ $360 \div 9 = 40$ $40 \times 40 = 1600$ $240 \div 20 = 12$

b)

	4	7
	×	7
3	2	9

c)

	3	6	8
		×	6
2	2	0	8

d)

	1	8	r 3
5	9	3	

e)

		7	8
7	5	4	6

3 Complete the table if the rule is : B = 2 fifths of A.

A	0	5	10	15	20	25	30	35	40	45	50	100	250	2
B	0	2	4	6	8	10	12	14	16	18	20	40	100	$\frac{4}{5}$

Write the rule as: A = $5 \times B \div 2$ or $B \times 2.5$

4 Which numbers can be written instead of the star?

a) $1525 < ☆ < 1530$ ☆ : 1526, 1527, 1528, 1529

b) $\frac{6}{11} \leq ☆ < 1$ ☆ : E.g: $\frac{6}{11}, \frac{7}{11}, \frac{8}{11}, \frac{9}{11}, \frac{10}{11}$

c) $1\frac{1}{8} \leq ☆ < 1\frac{1}{2}$ ☆ : E.g: $1\frac{1}{8}, 1\frac{2}{8}, 1\frac{3}{8}$

5 Round these measures to the nearest

a) litre: 234 cl ≈ 2 litres 375 cl ≈ 4 litres 4390 cl ≈ 44 litres

b) km: 4.6 km ≈ 5 km 3 km 45 cm ≈ 3 km 6390 m ≈ 6 km

c) kg: $1\frac{3}{8}$ kg ≈ 1 kg 1456 g ≈ 1 kg 5.5 kg ≈ 6 kg

1 Write the sums in the table.

a) $4 \times 100 + 5 \times 1 + 3 \times \frac{1}{10}$

b) $7 \times 10 + 1 \times 1 + 4 \times \frac{1}{100}$

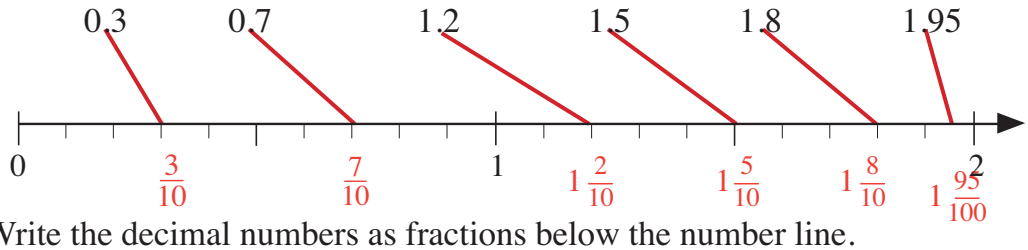
c) $1 \times 100 + 3 \times \frac{1}{10} + 9 \times \frac{1}{100}$

d) $9 \times \frac{1}{10} + 2 \times \frac{1}{100}$

e) $7 \times 1 + 5 \times \frac{1}{100}$

H 100	T 10	U 1	t $\frac{1}{10}$	h $\frac{1}{100}$
4	0	5	3	
	7	1	0	4
1	0	0	3	9
		0	9	2
		7	0	5

2 Join up the decimal numbers to the matching points on the number line.



Write the decimal numbers as fractions below the number line.

3 Continue each sequence for 3 more terms. Write the rule you used.

a) 0.1, 0.5, 0.9, 1.3, 1.7, 2.1, 2.5, *Rule:* +0.4

b) $\frac{1}{8}, \frac{3}{8}, \frac{5}{8}, \frac{7}{8}, 1\frac{1}{8}, 1\frac{3}{8}, 1\frac{5}{8}$, *Rule:* $+\frac{2}{8}$

c) 8, 4, 2, 1, $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$, *Rule:* ÷ 2

d) 2.1, 1.9, 1.7, 1.5, 1.3, 1.1, 0.9, *Rule:* −0.2

4 Calculate the quantities and give the answer in the units asked for.

a) $\frac{1}{2}$ of 35 m = 17.5 m = 17 m 50 cm = 1750 cm

b) 0.2 of 2 kg = 0.4 kg = 400 g

c) $\frac{3}{4}$ of 10 litres = 7.5 litres = 7 litres 50 cl = 750 cl

d) 0.25 of £22 = £5.50 = £5 50 p = 550 p

5 Tim watched television for 2 and a half hours. He spent 0.6 of his time watching sport. For how long did he watch sport? 90 mins

1 Which is more? How much more? Fill in the missing signs and differences.

a) 0.3 [<] $\frac{1}{2}$ [0.2] = [$\frac{2}{10}$]

b) $\frac{3}{4}$ [=] 0.75 [0]

c) $\frac{3}{5}$ [>] 0.2 [0.4] = [$\frac{4}{10}$]

2 Fill in the missing numbers. Follow the example.

a) i) $3\text{ mm} = \frac{3}{10}\text{ cm} = 0.3\text{ cm}$ ii) $6\text{ mm} = [\frac{6}{10}]\text{ cm} = [0.6]\text{ cm}$

b) i) $5\text{ cm} = [\frac{5}{100}]\text{ m} = [0.05]\text{ m}$ ii) $9\text{ cm} = [\frac{9}{100}]\text{ m} = [0.09]\text{ m}$

c) i) $76\text{ cm} = [\frac{76}{100}]\text{ m} = [0.76]\text{ m}$ ii) $12\text{ m} = [\frac{12}{1000}]\text{ km} = [0.012]\text{ km}$

3 Which numbers can be written instead of the letters?

a) $a + 2.3 = 3.7$ $a =$ [1.4]

b) $b - 4.6 = 8$ $b =$ [12.6]

c) $6.1 - c = 4$ $c =$ [2.1]

d) $\frac{3}{5} + d = 1\frac{1}{5}$ $d =$ [$\frac{3}{5}$]

e) $e - \frac{1}{4} = 2.6$ $e =$ [2.85]

f) $4.3 - f = 3\frac{1}{2}$ $f =$ [0.8]

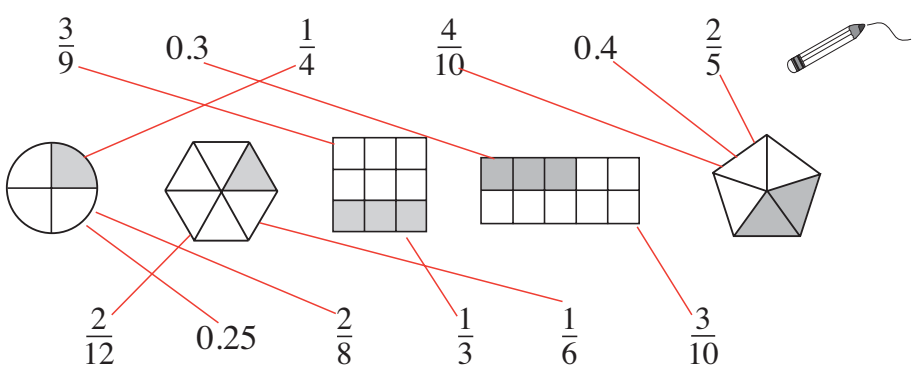
4 Solve the problem in your exercise book. Write only the answer here.

On Monday Paul spent £5.27, on Tuesday he spent £3.59, on Wednesday he spent £4.57, on Thursday he spent £3.12 and on Friday he spent £2.27.

a) How much did Paul spend altogether? ..... £18.82 .....

b) How much did he have left if he had £20 to start with? ..... £1.18 .....

5 Join the numbers to the matching diagrams.



1 Plan, estimate, calculate and check in your exercise book. Write the answer here.

a) Alice spent £3.27, Barry spent £4.17 and Chris spent £5.82 on their meals. How much was the bill altogether? £13.26

b) Dan mowed $\frac{3}{10}$ of the grass and Erica mowed $\frac{1}{5}$ of it.

i) What fraction of the grass did they mow altogether? $\frac{1}{2}$

ii) What fraction of the grass still has to be cut? $\frac{1}{2}$

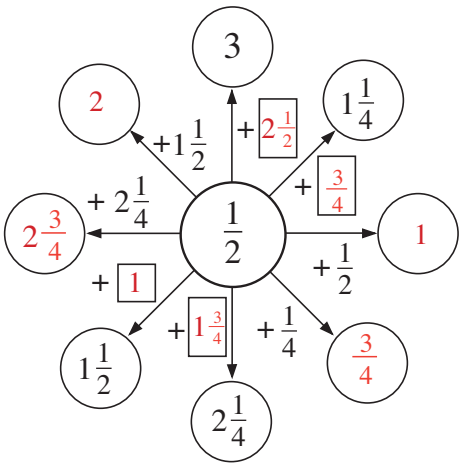
c) Jill bought 2.5 kg of apples and half a kg more of pears.

i) How many kg of pears did she buy? 3 kg

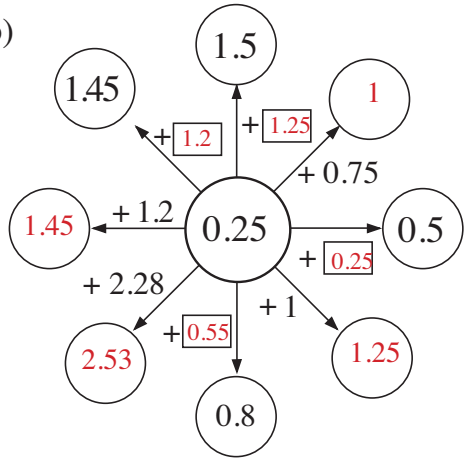
ii) How much fruit did she buy altogether? 5.5 kg

2 Fill in the missing numbers.

a)



b)



3 Which quantity is greater? Fill in the missing signs.

a) $\frac{3}{10}$ m [<] 54 cm b) 0.9 kg [>] 90 g c) $\frac{1}{6}$ hour [<] 30 min

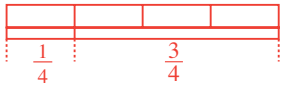
d) £150 20 p [=] £150.2 e) 5 $\frac{7}{100}$ litres [<] 5 litres 700 ml

f) $4\frac{1}{2}$ weeks [>] 29 days g) 84.3 cm [=] 843 mm [<] 8.43 m

4 Draw a digram to help you solve the problem.

Jack wants to cut a 1.2 m length of wood into two pieces so that one piece is three times as long as the other piece.

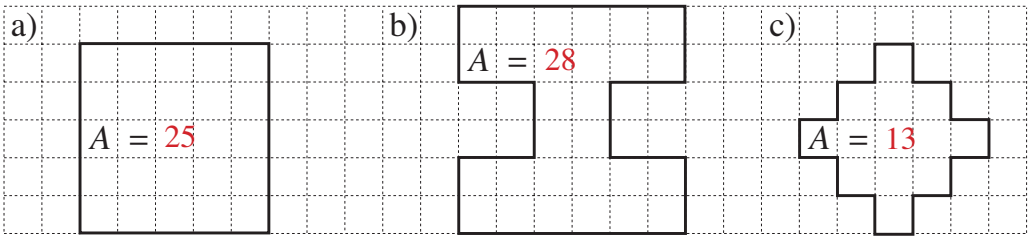
What will be the length of each piece? Give your answer in cm



1.2 m = 120 cm
120 cm ÷ 4 = 30 cm
3 × 30cm = 90 cm

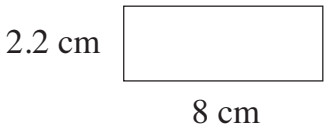
Answer: Short piece = 30 cm; long piece = 90 cm

1 Calculate the area and perimeter of each polygon.



a) $P = 20$ b) $P = 32$ c) $P = 20$

2 a) Calculate the area and perimeter of this rectangle.



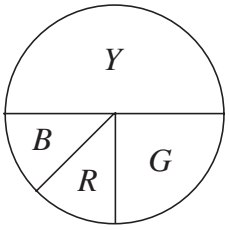
$P =$ 2 (2.2 + 8) = 10.2 × 2 = 20.4 cm

$A =$ 2.2 × 8 = 17.6 cm^2

b) What is the length of the side of a square which has a perimeter equal to this rectangle?

20.4 ÷ 4 = 5.1 cm

3



The **pie chart** shows the favourite colours of the 32 pupils in a class.

a) What fraction of the class chose each colour?

Red: $\frac{1}{8}$ *Blue*: $\frac{1}{8}$ *Yellow*: $\frac{4}{8} = \frac{1}{2}$ *Green*: $\frac{2}{8} = \frac{1}{4}$

b) How many pupils chose each colour?

R: 4 *B*: 4 *Y*: 16 *G*: 8

4 Solve the equations.

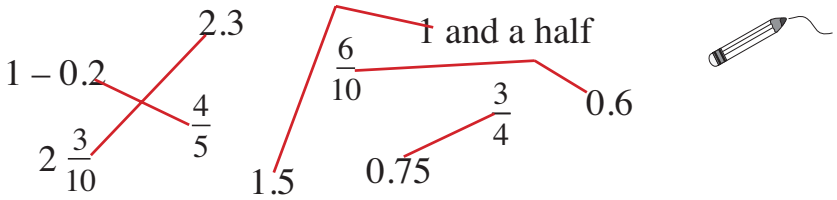
a) i) $5 + \boxed{1.5} = 6.5$ ii) $\boxed{1.8} + 3.9 = 5.7$ iii) $\boxed{1} + \frac{1}{4} = \frac{5}{4}$

iv) $\boxed{\frac{5}{7}} + \frac{2}{7} = 1$ v) $4.7 + \boxed{1.6} = 6.3$ vi) $\boxed{0.3} + 0.7 = 1$

b) i) $6 - \boxed{1.5} = 4.5$ ii) $\boxed{7.2} - 2.3 = 4.9$ iii) $\frac{5}{7} - \boxed{\frac{3}{7}} = \frac{2}{7}$

iv) $\boxed{1} - \frac{1}{5} = \frac{4}{5}$ v) $4.7 - \boxed{0.8} = 3.9$ vi) $\boxed{1} - 0.3 = 0.7$

5 Join up the equal values.



1

A small bird flies steadily at 0.8 m per second. Complete the table.

Time (seconds)	1	2	3	4	5	10	100	200	20	0
Distance (m)	0.8	1.6	2.4	3.2	4.0	8	80	160	16	0

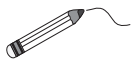
Write the rule: D = $T \div 10 \times 8$ ..... T = $D \div 8 \times 10$ .. 0.8 = $D \div T$ ...

or $D = \frac{4}{5}$ of T or $T = \frac{10}{8}$ of D

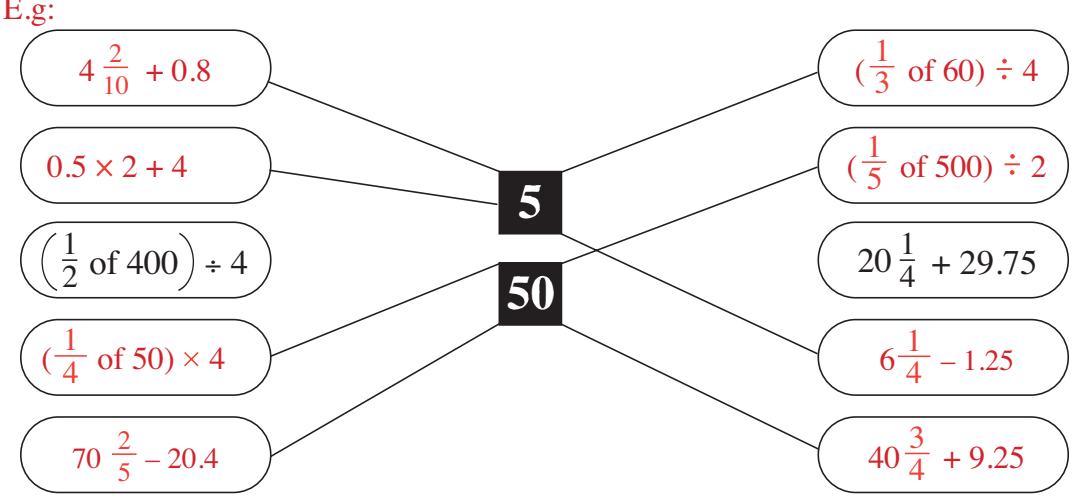
2

Make up the missing descriptions using decimals, fractions and whole numbers.

Join up the two already given to the matching white number.



E.g:



3

Practise addition and subtraction.

a) $527 + 91 = 618$

b) $4600 + 5100 = 9700$

c) $321 - 239 = 82$

d) $4270 - 1360 = 2910$

e) $470 + 1300 - 420 = 1350$

f) $7500 - 3700 + 2300 = 6100$

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

h) $\frac{4}{9} + \frac{3}{9} - \frac{2}{9} = \frac{5}{9}$

i) $0.5 + 0.7 - 0.2 = 1$

j) $7.3 - 2.5 + 6.8 = 11.6$

4

Which numbers can be written instead of the letters?

a) $400 \times 3 - a = 670$

a = 530

b) $5 \times (100 - b) = 170$

b = 66

c) $6 \times c + 40 = 280$

c = 40

d) $d + 20 \times 40 > 960$

$d >$ 160

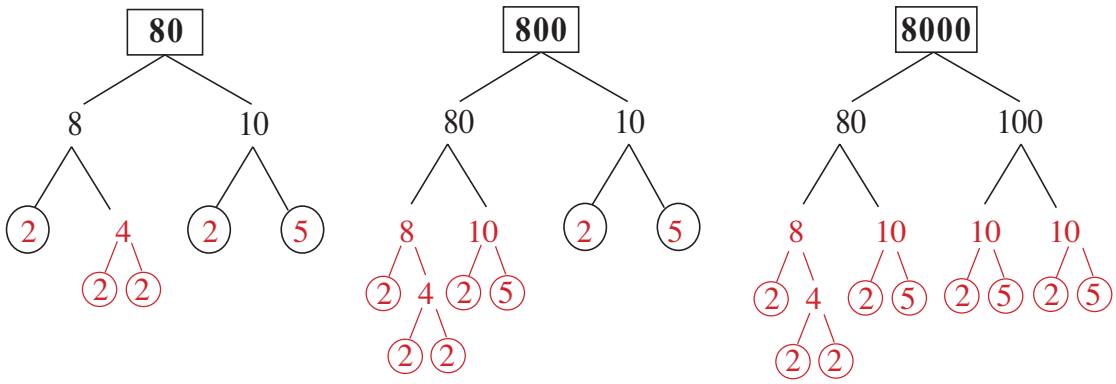
e) $e \div 9 \geq 4$

$e \geq$ 36

f) $40 \times 3 - 20 \div 10 \leq 100 + f$

$f \geq$ 18

1 Complete the diagrams to show the prime factors of each number.



2 Each rectangle is 1 unit. Colour:

E.g.

a) $\frac{1}{4}$ b) $\frac{2}{5}$ c) $\frac{3}{10}$ d) $\frac{7}{20}$

How much did you colour altogether? 1 $\frac{6}{10}$

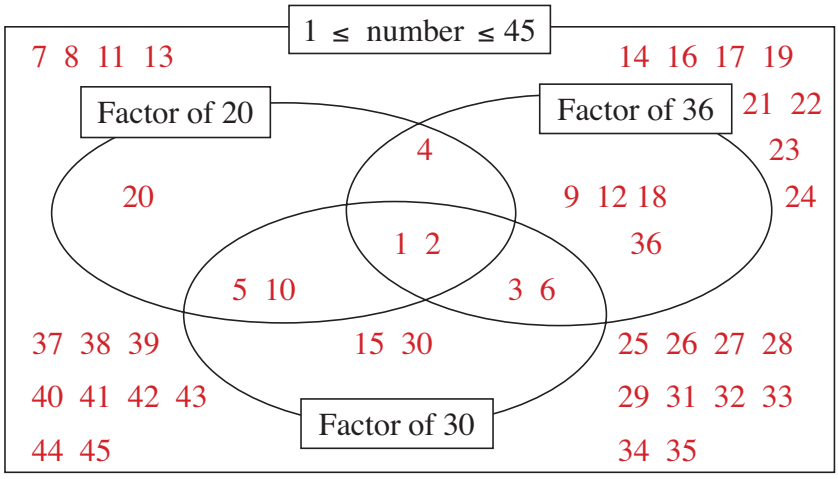
3 List all the natural factors of:

a) 20 : 1, 2, 4, 5, 10, 20

b) 36 : 1, 2, 3, 4, 6, 9, 12, 18, 36

c) 30 : 1, 2, 3, 5, 6, 10, 15, 30

Write the natural numbers from 1 to 45 in the correct set in this *Venn* diagram.



1

a) List the natural numbers which round to 3510 as the nearest ten and

i) are odd numbers . . 3505, 3507, 3509, 3511, 3513 . . . . . .

ii) have only odd digits. . . 3511, 3513 . . . . . .

b) List the natural numbers which round to 4500 to the nearest hundred and

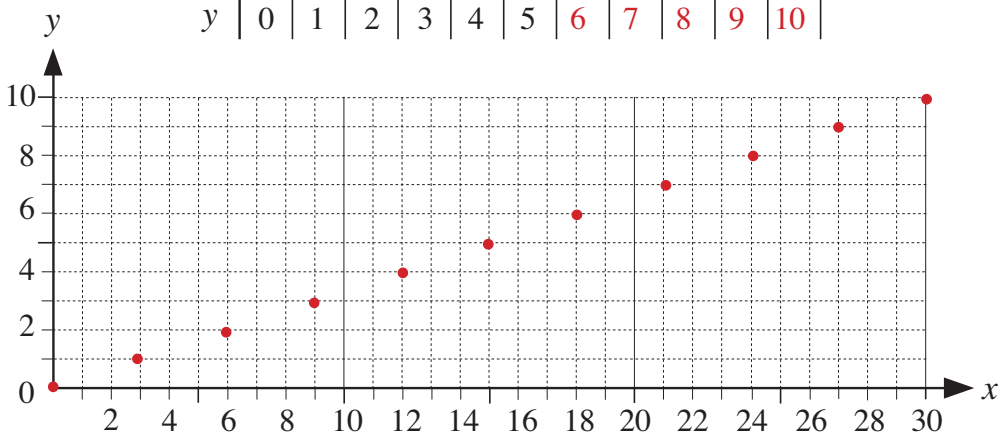
i) are exactly divisible by 5 but not by 10 . . . . . 4455, 4465, 4475,
. . . . . 4485, 4495, 4505, 4515, 4525, 4535, 4545 . . . . . .

ii) are even and have 2 in the tens column . . . . . .
. . . . . 4520, 4522, 4524, 4526, 4528 . . . . . .

2

Fill in the table using the rule: $y = \frac{1}{3}$ of x. Show the data as dots on the graph.

x	0	3	6	9	12	15	18	21	24	27	30
y	0	1	2	3	4	5	6	7	8	9	10



3

Do the calculations in your exercise book. Write only the result here.

a) Which number is added to 5367 to make 8000? 2633

b) Which number is 5 times 324? 1620

c) Which number is one fifth of 3240? 648

d) Which number is 429 less than 5300? 4871

4

Continue the sequences and write the rules you used.

a) 321, ^{48} 369, ^{49} 418, ^{50} 468, ^{51} . . . . . 519, 571, 624, 678, 733 . . . . . .

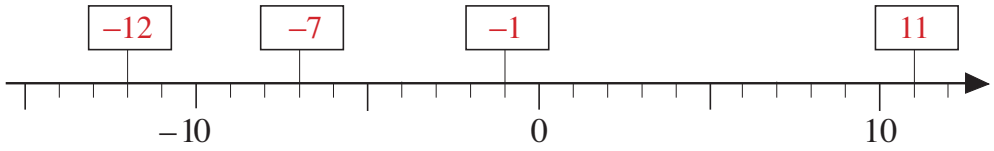
Rule: The difference between the terms increases by 1. . . . . .

b) $^{-50}$ 5000, $^{-100}$ 4950, $^{-150}$ 4850, $^{-200}$ 4700, $^{-250}$ 4500, $^{-300}$ 4250, $^{-350}$ 3950, $^{-400}$ 3600, 3200 . . . . . .

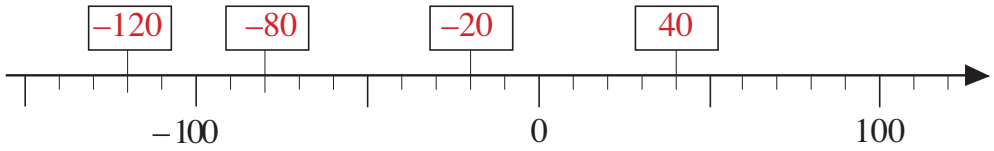
Rule: . . The numbers are decreasing by a difference that decreases by 50. . . . . .
(The difference between terms increases by − 50.)

1 Fill in the missing numbers.

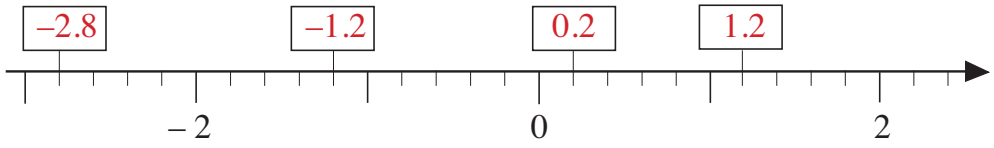
a)



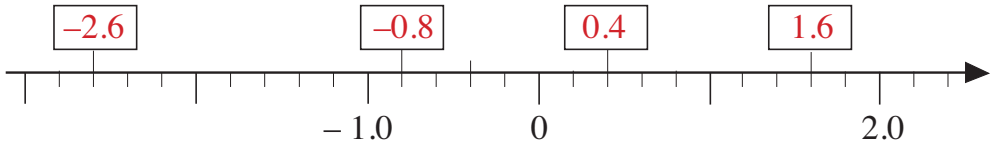
b)



c)



d)



2 Write these heights above *sea level* in decreasing order.

a) 147 m, 245 m, – 212 m, – 348 m, 127 m, 101 m, – 113 m, 315 m

315 m > 245 m > 147 m > 127 m > 101 m > –113 m > – 212 m > –348 m

b) 1.2 km, – 0.6 km, 4.5 km, 0.3 km, – 1.5 km, – 2.3 km, 2.5 km

4.5 km > 2.5 km > 1.2 km > 0.3 km > –0.6 km > – 1.5 km > –2.3 km

3 Which number is greater and by how much?

a) 12 [>] 6 — [6]

b) 0 [<] 7 — [7]

c) 5 [>] – 1 — [6]

d) – 3 [<] 6 — [9]

e) – 5 [<] 0 — [5]

f) – 4 [>] – 9 — [5]

g) 5 [>] – 5 — [10]

h) – 5 [<] – 2 — [3]

4 Mark on the number line all the whole numbers that are:

a) greater than $-5+3$ ($-5+3=-2$) in *red*

b) less than $-5+2$ ($-5+2=-3$) in *blue*.

Which numbers have not been marked? –2, –3

Mark with dots on the number line the positions of 10.5 and – 5.5.

1 Continue the sequence. Write the rule you used. *Rule*

a) $-60, -45, -30,$ −15, 0, 15, 30, 45 ..... +15

b) 2.1, 1.5, 0.9, 0.3, −0.3, −0.9, −1.5, −2.1 ..... −0.6

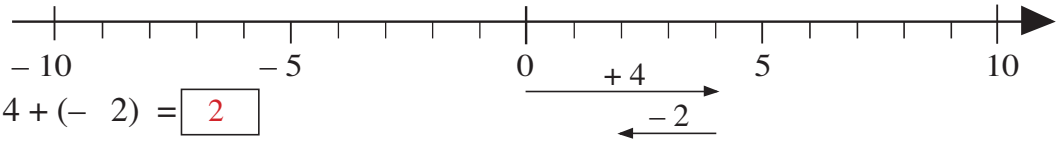
c) 4, 3, 2.1, 1.3 0.6, 0, −0.5, −0.9, −1.2 .....

Rule: difference between terms decreasing by 0.1 .....

d) $-2, -1\frac{1}{2}, -1, \ldots$ $-\frac{1}{2}, 0, \frac{1}{2}, 1, 1\frac{1}{2}$ ..... $+\frac{1}{2}$

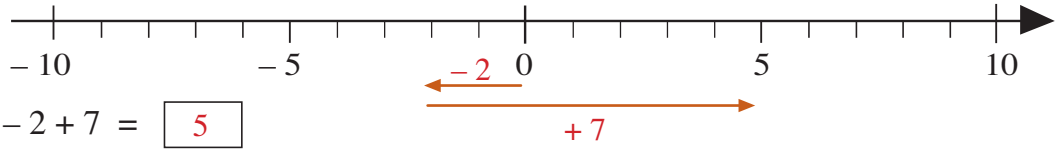
2 Draw arrows to show the moves along the number lines. Fill in the results.

a)



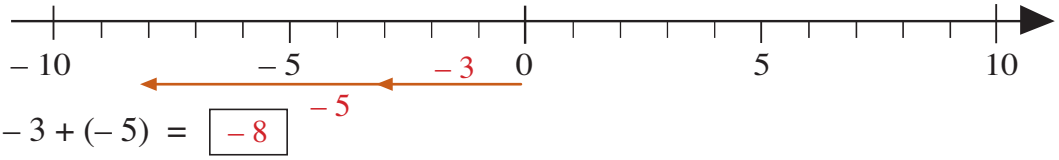
4 + (– 2) = 2

b)



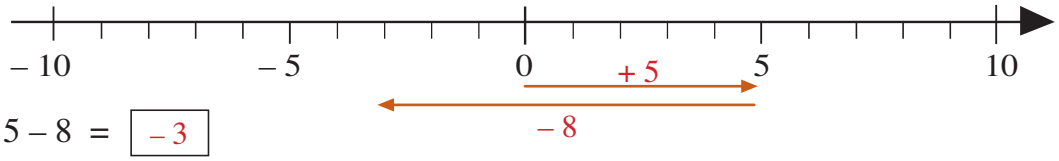
– 2 + 7 = 5

c)



– 3 + (– 5) = – 8

d)



5 – 8 = – 3

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

a) 3 + 5 = 8 b) 3 + (– 3) = 0 c) 4 + (– 6) = – 2

d) – 4 + 6 = 2 e) – 5 + 5 = 0 f) – 2 + (– 3) = – 5

4 When Jenny went on holiday to Finland, the temperature was 18°C colder than in England. If the temperature in Jenny's town was 15°C when she left, what was the temperature when she arrived in Finland?

Answer: −3°C .....

1 How many different 4-digit numbers can you make from these number cards?

1	2	3	4

a) Continue the list.

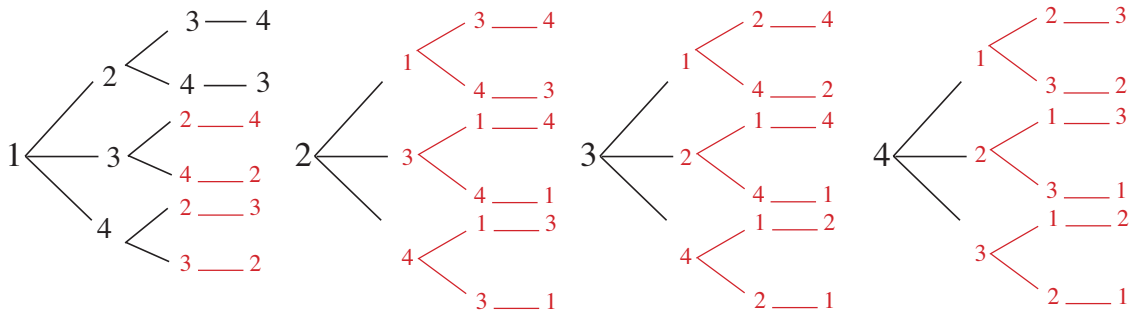
1234, 1243, 1324, 1342, 1423, 1432 .....

2134, 2143, 2314, 2341, 2413, 2431 .....

3124, 3142, 3214, 3241, 3412, 3421 .....

4123, 4132, 4213, 4231, 4312, 4321 .....

b) Continue drawing the tree diagram.



2 What is the smallest natural multiple of 2, 3, 4, 5 and 8? 120

(or 0, where zero is defined as a natural number)

3 In an opaque bag, there are 5 *black*, 10 *red* and 5 *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:

a) 3 marbles which are the same colour 7

b) a *red* marble? 11

4 List in your exercise book all the numbers between 999 and 10 000 which have 4 as the sum of their digits. How many did you find? 20

See Lesson Plan for the numbers.

5 Practise calculation.

a)

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

b)

2	1	5	1	0
−	7	4	5	6
1	4	0	5	4

c)

	9	3	6	4
			×	4
3	7	4	5	6

d)

		7	4	4	2
5	3	7	2	1	0

e)

	7	5	6	2
			×	7
5	2	9	3	4

f)

1	6	5	4	3
−	4	6	6	0
1	1	8	8	3

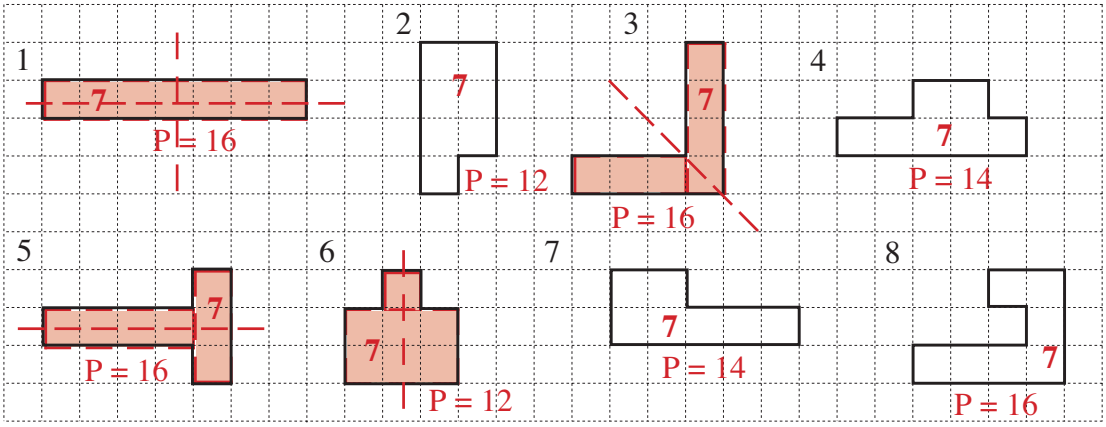
g)

	5	8	0	3
			×	8
4	6	4	2	4

h)

			1	0	1
1	0	1	0	1	0

1



a) Colour the shapes which are **symmetrical** and draw the **lines of symmetry.**

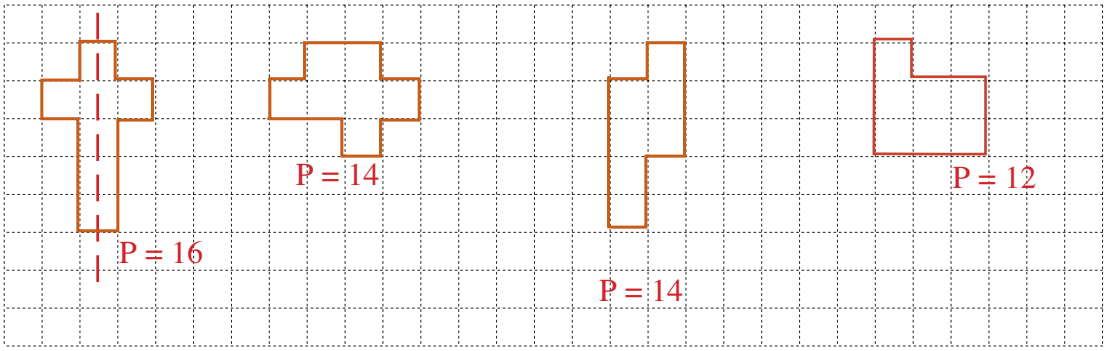
b) Write the perimeter length (in grid units) below each shape.

c) Write the area (in grid squares) inside each shape.

What do you notice about the areas of the shapes? . all 7 units . . . . . .

d) On the grid below, draw 4 more shapes which are different from those above but which have the same area.

Draw any lines of symmetry. Write the perimeter length below each shape.



2

a) Find these points on the grid and join them up.

(6, 1), (5, 4), (2, 2),

(4, 5), (1, 6), (4, 7),

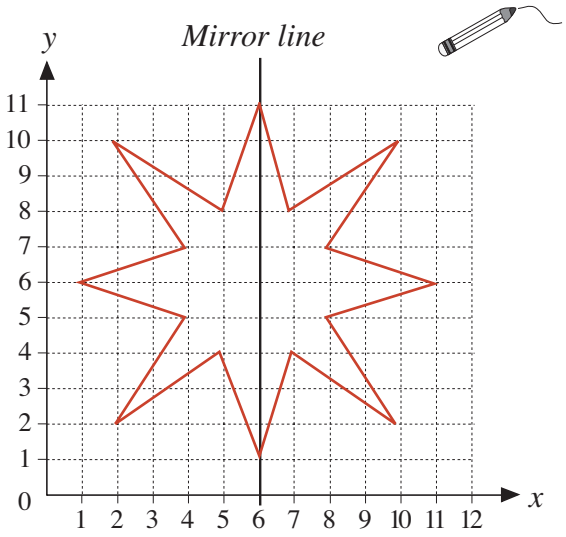
(2, 10), (5, 8), (6, 11).

b) **Reflect** your shape in the *mirror line*.

c) How many vertices has the shape you have drawn? 16

d) Is it convex or concave?

. . . . . concave . . . . . .



e) What is its name? 8-pointed star . . .

1

Andrew has £4 in cash and is £1 in debt.
Bonny is £6 in debt and has no cash.
Charlie has £4 in cash and is £4 in debt.
Debbie has £10 in cash and is £5 in debt.
Edward is £8 in debt and has £6 in cash.

children	A	B	C	D	E
cash	4	0	4	10	6
debt	1	6	4	5	8
balance	3	–6	0	5	–2

a) Write the data and the balances in a table in your exercise book.

b) Make a graph to show their balances in your exercise book.

c) Write the balances in increasing order. . . . . –6, –2, 0, 3, 5 . . . . . .

d) What is the difference between the first and last piece of data? . . . . . 5 + 6 = 11 . . . . . .

e) What is the **median** (middle data)? . . . . 0 . . . . . .

2

In a street, the houses have the following heights.

Number	1	2	3	4	5	6	7	8	9	10	11
Height (m)	6	14	5.4	13.6	6.5	15	5	14.5	5.8	14	5.2

a) Draw a graph in your exercise book. (Use the scale: 1 cm → 1 m)

b) List the heights in increasing order.

. . 5, 5.2, 5.4, 5.8, 6, 6.5, 13.6, 14, 14, 14.5, 15 . . . . . .

c) What is the difference between the smallest and greatest heights? . . . . . 10 m . . .

d) What is the **median**? . . . . 6.5 m . . . .

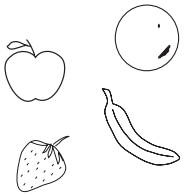
3

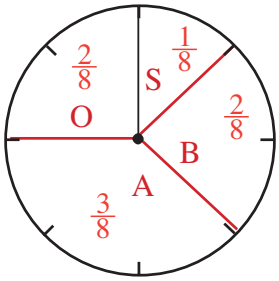
Some children were asked about their favourite fruit.

10 of them said strawberries, 20 said bananas, 20 said oranges and 30 said apples.

Make a **pie chart** to show the data.

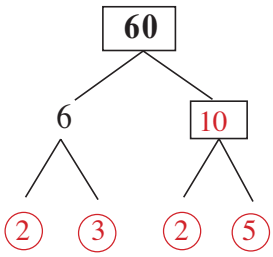
Write the fraction in each part.





4

A cuboid is built from 60 unit cubes. How many units long can its edges be?



First factorise 60, then show the possibilities in the table.

a	1	1	1	1	1	1	2	2	2	3				
b	1	2	3	4	5	6	2	3	5	4				
c	60	30	20	15	12	10	15	10	6	5				

1

Which equation can be the rule of each table? Colour the matching number and letter circles in the same colour.

1

x	10	5	2
y	5	10	13

2

x	10	5	2
y	5	10	25

3

x	10	5	2
y	15	10	7

(a) $x + y = 15$ 1
(b) $x \times y = 50$ 2
(c) $y = x - 5$
(d) $y = x + 5$ 3
(e) $x + 15 = y - 10$
(f) $y - 5 = x$ 3
(g) $y = 15 - x$ 1
(h) $x \div 2 = y$
(i) $50 \div x = y$ 2

2

Harvey's Dad was 28 years old when Harvey was born. Complete the table.

Harvey's age (years)	0	1	2	4	7	15	18	27	8	19	28
Dad's age (years)	28	29	30	32	35	43	46	55	36	47	56

a) How old will Harvey's Dad be when Harvey is 18? ...46.....

b) How old will they be when their ages total 100 years?

Harvey: ...36..... Harvey's Dad: ...64.....

c) Write the rule for the table.

D = ...$H + 28$..... H = ...$D - 28$..... 28 = ...$D - H$.....

3

There were 320 litres of water in a tank. The valve was opened and water flowed out of the tank at the rate of 35 litres per minute.

a) Complete the table.

Time (minutes)	0	1	2	3	4	5	6	7	8	9
Outflow (litres)	0	35	70	105	140	175	210	245	280	315
Water left (litres)	320	285	250	215	180	145	110	75	40	5

b) After how many minutes was the tank less than half full? ...after 5 mins...

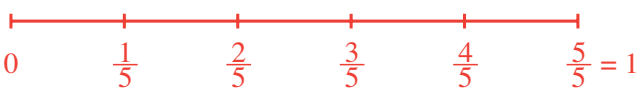
c) After how many minutes was the tank empty? ...after 10 mins...

d) How much water flowed out of the tank in the last minute? ...5 litres.....

4

Draw a line 7.5 cm long.

Divide it up into fifths.



1

Predict the results for each outcome first, then do the experiment.

Toss 3 coins (at the same time) 20 times and note how they land in this table.

Outcome	Prediction	Tosses 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Totals
3 Heads			
2 Heads + 1 Tail (in any order)			
1 Head + 2 Tails (in any order)			
3 Tails			

Each pupil's answer will be different.

What **fraction** of the tosses resulted in:

a) 3 Heads b) exactly 2 Heads c) exactly 1 Head d) no Heads?

If you do the experiment again, which outcome do you think will be most likely?

. . . . . .

2

If we put a set of 4 videos (A, B, C and D) back on the shelf without looking at their titles, in what order could they end up? Show all the possibilities.

A B C D	A B D C	A C B D	A C D B	A D B C	A D C B
B A C D	B A D C	B C A D	B C D A	B D A C	B D C A
C A B D	C A D B	C B A D	C B D A	C D A B	C D B A
D A B C	D A C B	D B A C	D B C A	D C A B	D C B A

What is the probability that:

a) the videos will be in the correct order $\frac{1}{24}$

b) *Video A* will be on the left-hand side? $\frac{6}{24} = \frac{1}{4}$

3

There are 12 biscuits in a tin and there are equal numbers of gingernuts, custard creams and chocolate wafers. If the 5 members of a family each took a biscuit out of the tin without looking, what is the probability that they will all have taken a chocolate wafer?

. . . Impossible as there are only 4 chocolate wafers. . . . . .

1

a) A cuboid is built from 30 unit cubes.

What are the possible lengths of its edges?

List them in the table.

1	1	1	1	2
1	2	3	5	3
30	15	10	6	5

b) If all its edges are more than 1 unit long, what lengths must its edges be? 2, 3, 5

c) What is the area of its longest side? $5 \times 3 = 15$ (units)

2

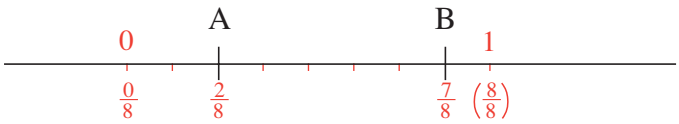
a) Factorise 360 in your exercise book.
What are its prime factors? $2 \times 2 \times 2 \times 3 \times 3 \times 5$

b) Factorise 768 in your exercise book.
What are its prime factors? $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3$

c) What is the greatest natural number which is a factor of both 360 and 768? 24 $2 \times 2 \times 2 \times 3 = 24$

3

Point A stands at $\frac{1}{4}$ and *Point B* stands at $\frac{7}{8}$. Mark the positions of 0 and 1.



4

Check that the results are correct. Correct the answer if it is wrong.

×a) CDLX × VII = MMMCCX (460 × 7, 3210)

×b) MMCXII – MCMXV = XCVII (2112 – 1915, 97)

×c) MMMLXIX ÷ IX = CCCXL (3069 ÷ 9, 340)

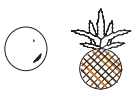
×d) CCCLXXXVII + MCCXIII = MCD (387 + 1213, 1400)

a) Should be MMMCCXX (3220) b) Should be CXCVII (197)

c) Should be CCCXLI (341) d) Should be MDC (1600)

5

To make enough fruit punch for a party of 12 people needs:



$1\frac{3}{4}$ litres of orange juice, 500 ml of lemon juice, $2\frac{1}{2}$ litres of pineapple juice, 1.5 litres of white wine and 4.75 litres of lemonade.

How many 2 litre jugs in which to serve the punch will be needed?

Answer: 6 jugs - but the last jug will contain only 1 litre of punch.

1

Practise calculation.

a)

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

b)

8	0	4	3	2
–	5	6	7	9
7	4	7	5	3

c)

	3	5	2	8
			×	5
1	7	6	4	0

d)

		9	0	3	2
9	8	1	2	8	8

e)

	6	5	9	0
			×	8
5	2	7	2	0

f)

3	4	7	0	8	
1	0	5	3	2	–
2	4	1	7	6	

g)

1	4	0	3	5
			×	7
9	8	2	4	5

h)

		2	5	2	6
4	1	0	1	0	4

i)

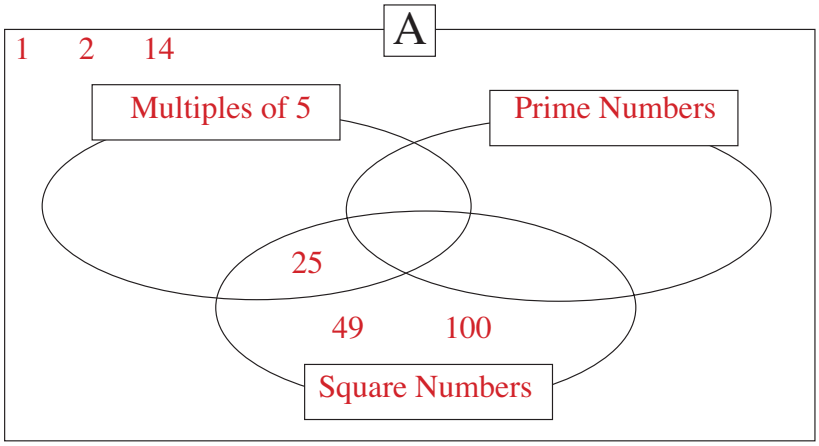
			6	1	2
1	1	6	7	3	2

2

How could you put these numbers into sets? Label each set, then write the numbers in the correct places.

Set A = {11, 7, 14, 23, 1, 25, 49, 70, 15, 45, 3, 100, 47, 19, 2}

E.g:



3

Fill in the missing numbers.

a) i) 360 min = 6 hours ii) 25 min = $\frac{5}{12}$ hour

b) i) 36 hours = $1\frac{1}{2}$ days ii) 2 days = $\frac{2}{7}$ week

c) i) 700 g = $\frac{7}{10}$ kg ii) $\frac{2}{10} = \frac{1}{5}$ kg = 200 g

d) i) 40 cm = $\frac{40}{100} = \frac{2}{5}$ m ii) $\frac{3}{20}$ m = 15 cm

e) i) 250 m = $\frac{1}{4}$ km ii) $2\frac{1}{2}$ km = 2500 m

f) i) 200 cl = 2 litre ii) 200 ml = $\frac{1}{5}$ litre

1 Fill in the missing numbers.

Horizontal Clues

a 7032 – 3768

f 4773 + 2789

g The 9th square number

h 56Th + 7H + 5T + 3U

j 518 × 4

l Difference between the smallest 3-digit number and the smallest natural number

a 3	b 2	c 6	d 4		e 1
f 7	5	6	2		1
9		8		g 8	1
h 5	6	7	i 5	3	
		j 2	0	7	k 2
l 9	9		1		9

Vertical Clues

a 18975 ÷ 5

b 1 quarter of 100

c 65 000 + 1872

d $\left(\frac{2}{5} \text{ of } 15\right) \times (140 \div 20)$

e A 3-digit number with all its digits the same

g 10 000 – 9163

i $\frac{1}{4}$ of 2000 + 4 × $\frac{1}{4}$

k The 10th prime number

2 Fill in the missing letters.

Horizontal clues only

1 6-sided plane shape

2 3-D shape with many plane faces

3 To make bigger

4 Plane shape with no straight sides

5 Opposite of multiply

6 A triangle has 3 of them

7 A shape has this if one half is a mirror image of the other half

8 The same shape but not necesarily the same size

	1H	e	x	a	g	o	n	
2p	o	l	y	h	e	d	r	o	n
3e	n	l	a	r	g	e			
4c	i	r	c	l	e				
	5d	i	v	i	d	e			
	6a	n	g	l	e	s			
7s	y	m	m	e	t	r	y		
	8s	i	m	i	l	a	r		

The word highlighted is what you deserve after all your hard work! Holidays

3 What is twice the half of two and a half?

$2\frac{1}{2}$