1 Calculate the real distances if 1 cm on the diagram means 62 m in real life.
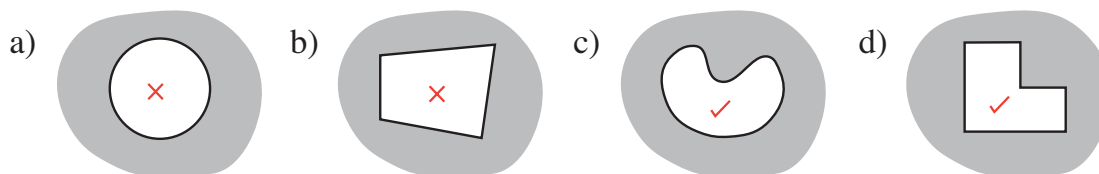

How far away does:

a) Bob live from Alan   124 m . b) Carol live from Bob   186 m .

c) David live from Carol 248 m . d) Carol live from Alan   310 m .

e) David live from Bob   434 m . f) David live from Alan?   558 m .

2 In a dense forest there are some clearings. In which of the clearings could you hide from someone? Write a ✔ or a ✘ inside each one.

a)   ✗   b)   ✗   c)   ✓   d)   ✓

3 The two lines in each diagram are the diagonals of a quadrilateral. They are **perpendicular** to one another.   Draw the quadrilaterals and measure their sides.

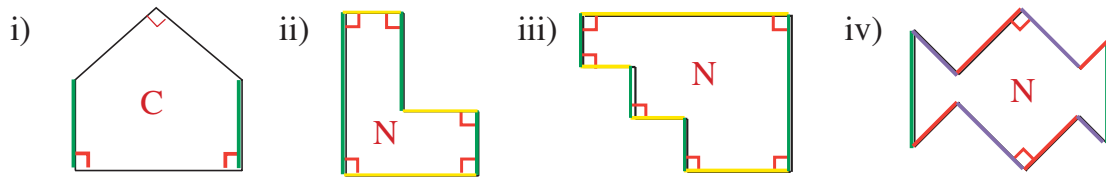a)   b)   c)   d)   e)
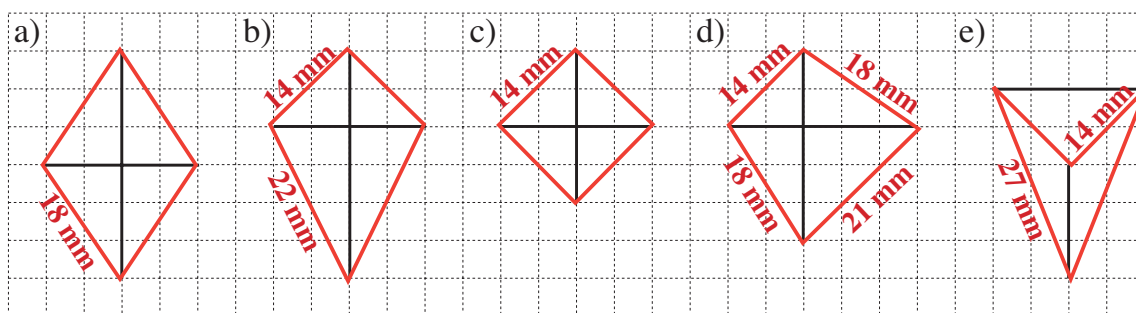
(Approximate measurements)

4 How many faces, edges, and vertices does each solid have? What is its volume (in unit cubes)?   What is its surface area (in unit squares)?

a)   b)   c)   d)

	a)	b)	c)	d)
faces:	6	6	9	8
edges:	12	12	21	18
vertices:	8	8	14	12
volume:	16	8	7	6
area:	40	24	24	22

1 Draw over the sets of **parallel lines** in the same colour. Mark the **right angles.**
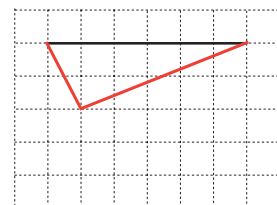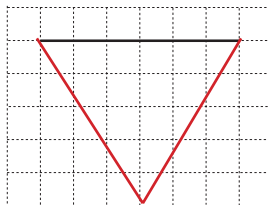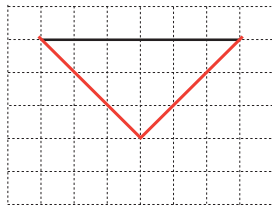
i)

C

ii)

N

iii)

N

iv)

N

Write C in the shapes which are **convex** and N in the shapes which are not convex.

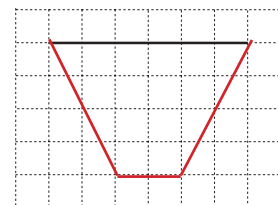**2** In each diagram, one side of a polygon has been drawn.

a) Complete the diagram to form a **triangle** which has:

E.g:

i) 1 right angle   ii) 3 angles < a right angle   iii) 1 angle > a right angle

b) Complete the diagram to form a **quadrilateral** which has:

E.g:

i) 4 right angles   ii) 2 right angles   iii) no right angles
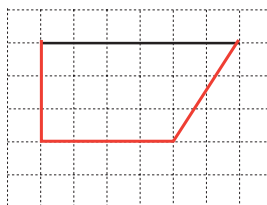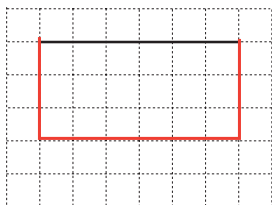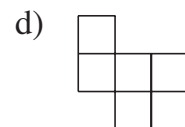
3 Colour the nets which could be folded to make a cube.

a)   b)   c)   d)

e)   f)   g)   h)
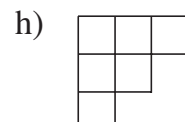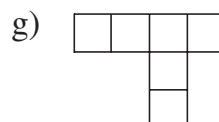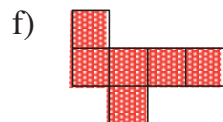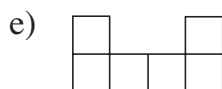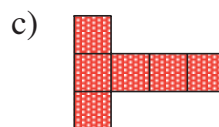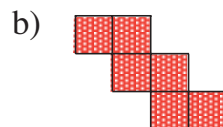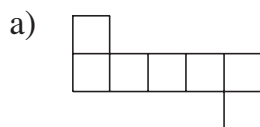
4 Complete these non-convex shapes so that they become **convex** shapes.

E.g:

a)   b)   c)   d)   e)
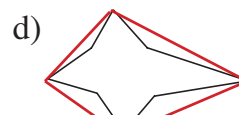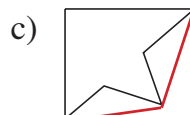
1
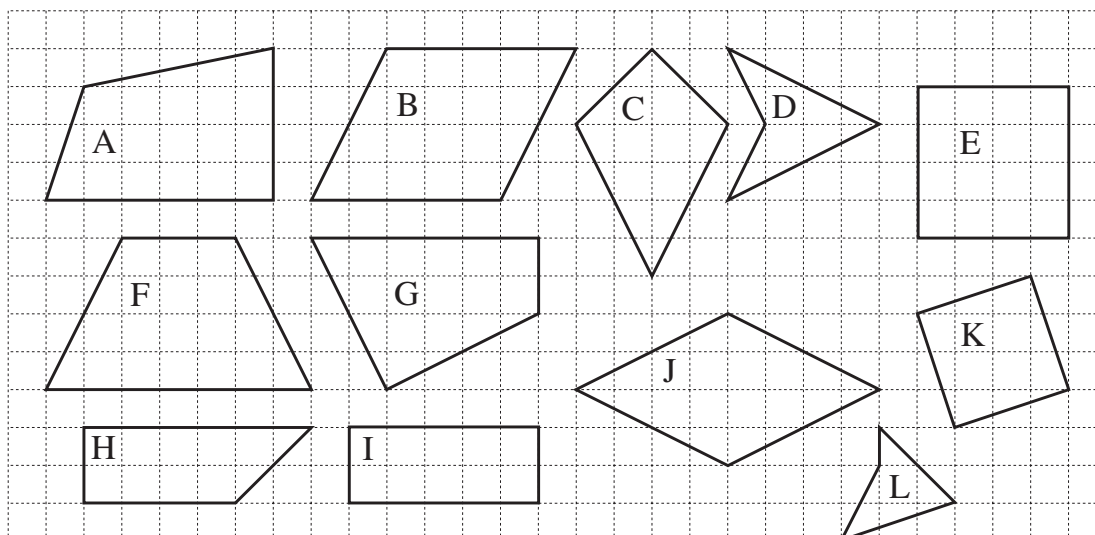
List the letters of the shapes for which each statement is true.

a) It has 2 sides which are equal in length. .B, C, D, E, F, G, I, J, K . . . . .

b) All its sides are equal. .E, J, K . . . .

c) Its opposite sides are equal. .B, E, I, J, K . . . .

d) It has a pair of perpendicular sides. .A, C, E, G, H, I, K . . . .

e) It has a pair of parallel sides. .B, E, F, H, I, J, K . . . .

f) It is symmetrical. .C, D, E, F, I, J, K . . . .

g) There is a right angle at every vertex. .E, I, K . . . .

h) Opposite sides are parallel to each other. .B, E, I, J, K . . . .

2

List the statements in *Question 1* which are true for all

a) rectangles .all except b) . . . . . b) squares .all of them . . . .

3

Write the letters of the quadrilaterals in *Question 1* in the correct set.

P: Opposite sides are parallel. **S**: It has line symmetry.

R: It has at least 1 right angle. **C**: It is convex.

a)

Quadrilaterals

D F L

P

R

A C G H

B J

E I K

b)

Quadrilaterals

L

S

C

D

C E
F I
J K

A B G H
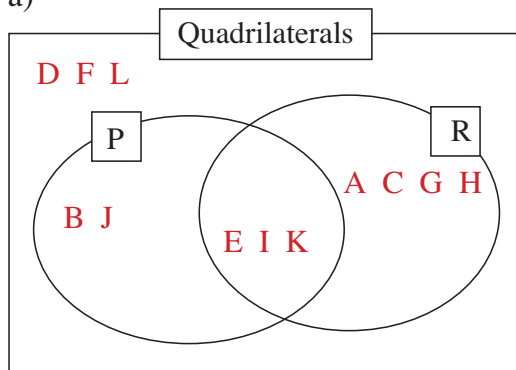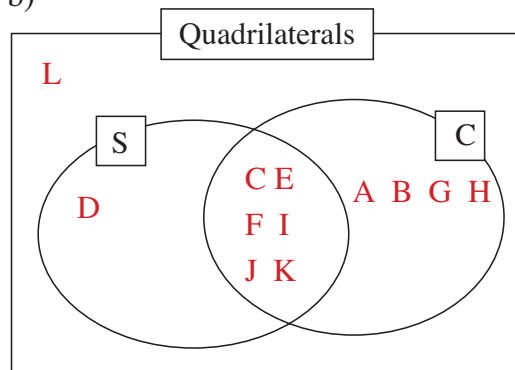
1 Draw over the parallel lines in the same colour. Mark the right angles.
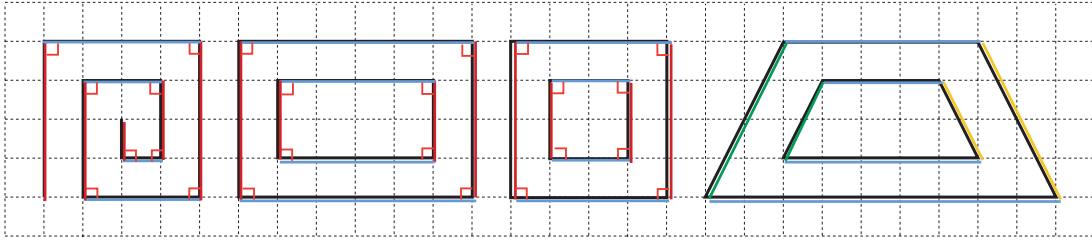
2 We labelled the vertices of this **pentagon** with letters and marked the angles.

At which vertex is there:

a) a right angle? ...D......

b) an angle smaller than a right angle? ...A and B..

c) an angle greater than a right angle? ...C and E..
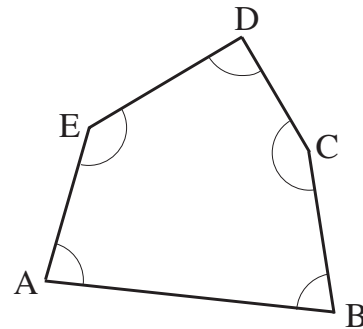
3 Measure the sides of each rectangle. Calculate its perimeter and area.

a) 3 cm
2 cm
$A = 6$ cm²
$P = 10$ cm

b) 2 cm
$A = 4$ cm²
$P = 8$ cm

d) 14 mm
$A = 196$ mm²
$P = 56$ mm

e) 25 mm
$A = 625$ mm²
$P = 100$ mm

c) 1 cm $8\frac{1}{2}$ cm
$A = 8\frac{1}{2}$ cm²
$P = 19$ cm

f) 11 mm
$A = 121$ mm²
$P = 44$ mm

4 The diagram shows the net of an open box drawn to a smaller scale.

a) What shape was the box? ...cuboid......

b) How long were the edges of the box if 1 mm on the diagram means 1 cm in real life? Write them on the diagram.

c) Draw the rectangle which is missing if the box had been covered.

30 cm
10 cm
10 cm
10 cm

1

A 4 / 8

B 2 / 6

C 2 / ≈7

D 2 / 6

E 4 / 8

F 8 / ≈11

G 4 / ≈10

H 8 / 12

I 4.5 / ≈10

J 18 / 18

K 5 / ≈9

L 4 / ≈8
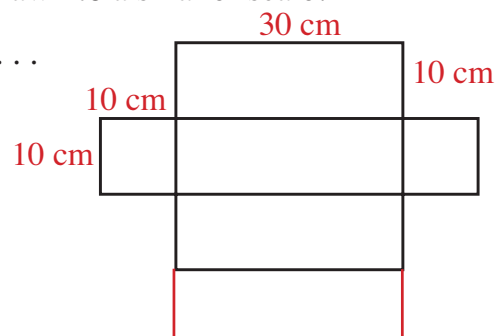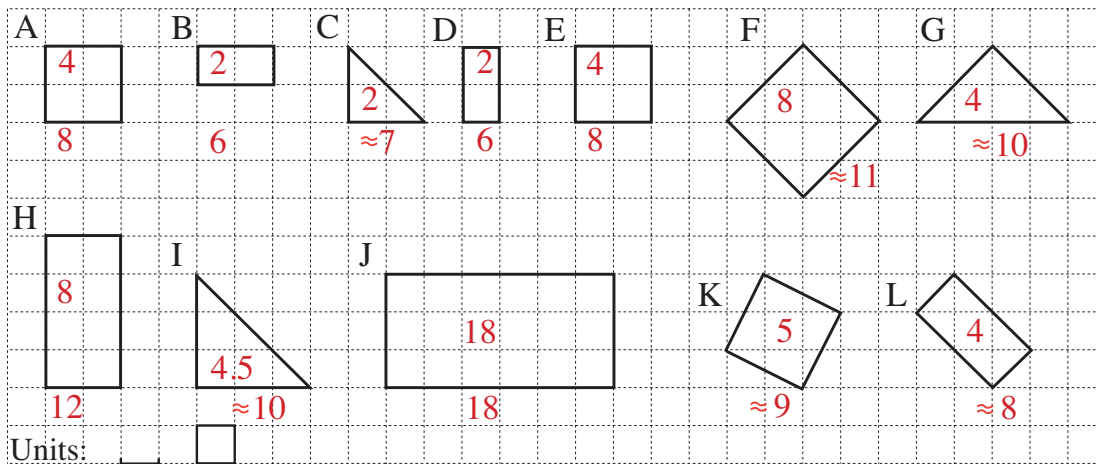
Units:

List the **similar** shapes. . . A, E, F, K . . . . B, , D, H, J, L . . . C, G, I . . . .

Write the **area** inside each shape and the length of the **perimeter** below.

2

a) Draw shapes using 4 unit shapes. E.g:

b) Draw shapes using 9 unit shapes. E.g:

i) 1

ii) 1

i) 1

ii) 1
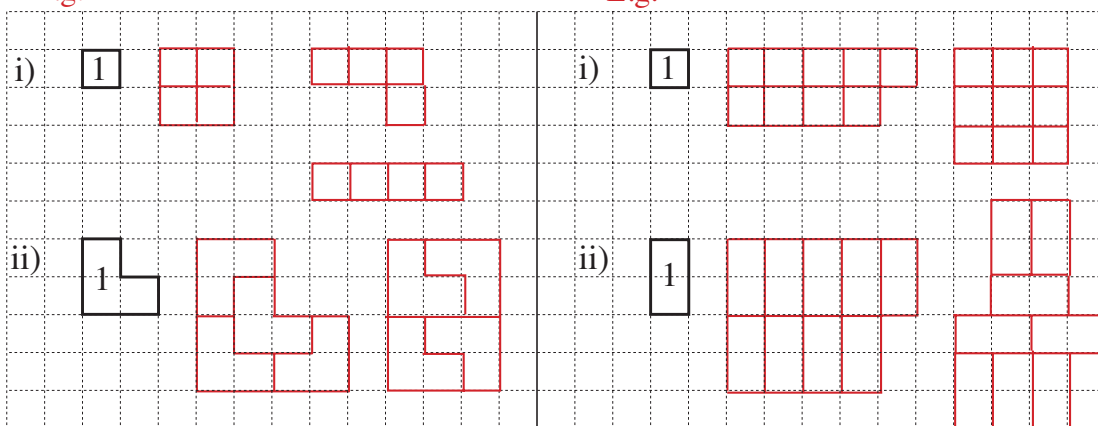
3

a) **Reflect** the letter N in the given **axis** (mirror line).
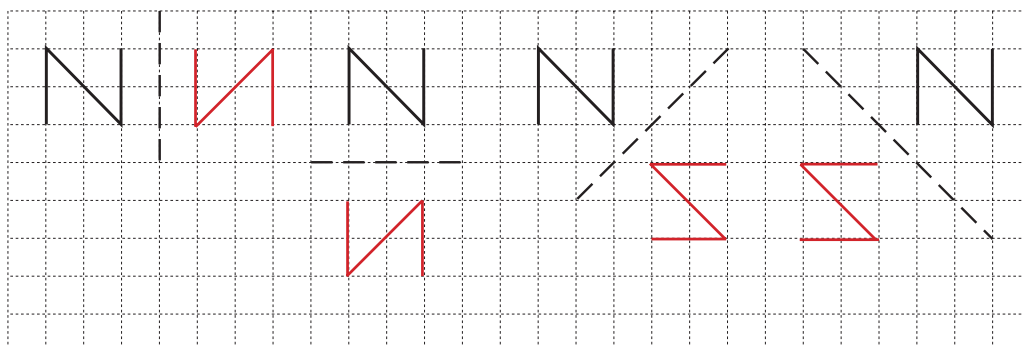
b) **Stretch** the letter N in the direction shown by the arrow.

× 2

× 3

half

1
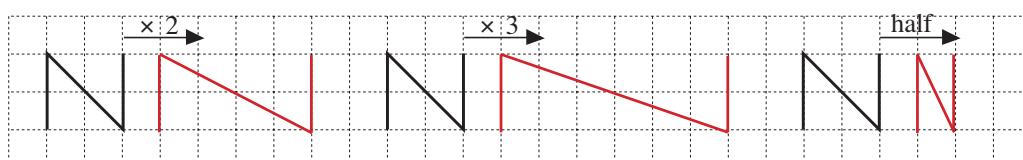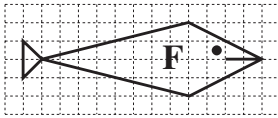
i)   Complete the drawings of fish F on the other grids.

ii) Colour the fish which is **similar** to fish F.

a)

b)   c)

d)

2
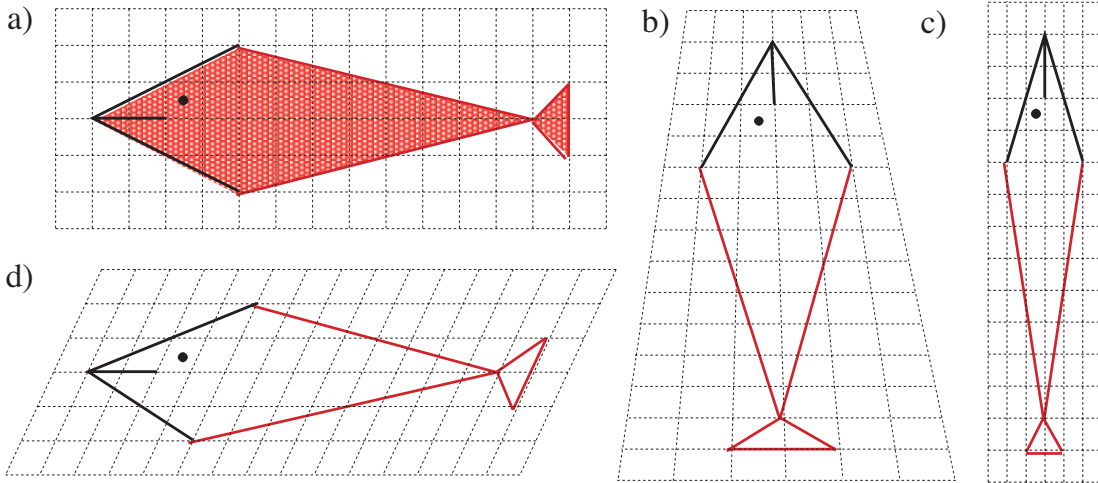
a)   Draw over in the same colour the perimeters of **similar** shapes.

b)   Colour in the same colour the shapes which are **congruent**.
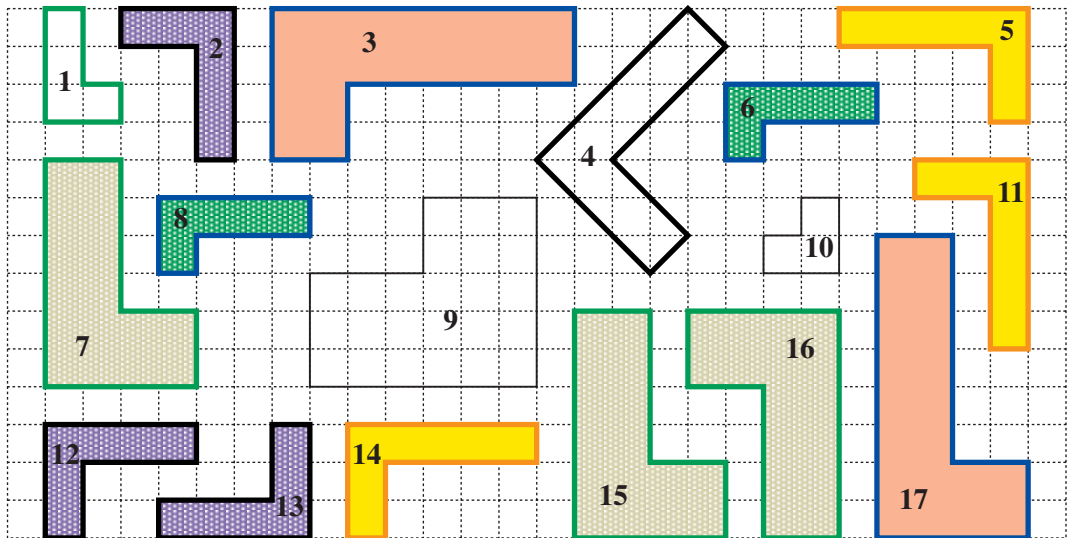
3

P = 16 units
A = 24 triangles
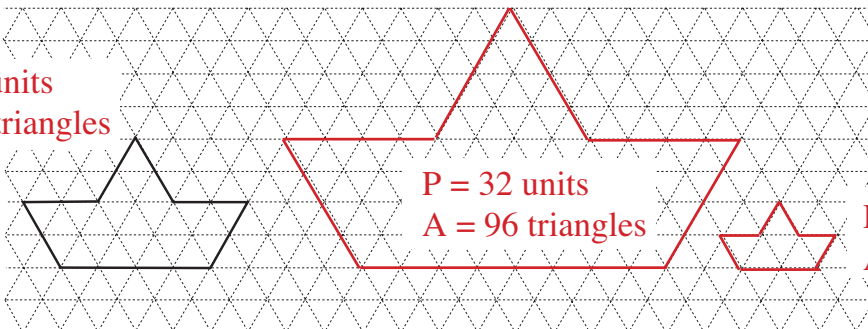
P = 32 units
A = 96 triangles

P = 8 units
A = 6 triangles

a)   **Enlarge** the boat to twice its size.

b)   **Reduce** the boat to half its size.

c)   Count the perimeter of each boat.

d)   Count the area of each boat.

1
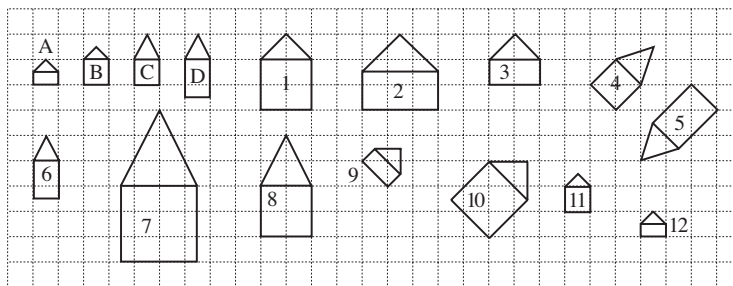
a)   List the numbers of the houses which are **similar** to:

House A: .2, 3, 9, 12. . . . .   *House B*: .1, 10, 11. . . . .

House C: .4, 7, 8. . . . .   *House D*: .5, 6. . . . .

b)   List the houses which are **congruent** to one another.

. . . . A is congruent to 12; B is congruent to 11; D is congruent to 6 . . . .

2

a)   Write the perimeter and area of each shape using the units shown.

units:

$A = 36$

① $P = 10$ ② $P = 10$ ③ $P = 20$ ④ $P = 20$ ⑤ $P = 30$
$A = 4$ $A = 4$ $A = 16$ $A = 16$
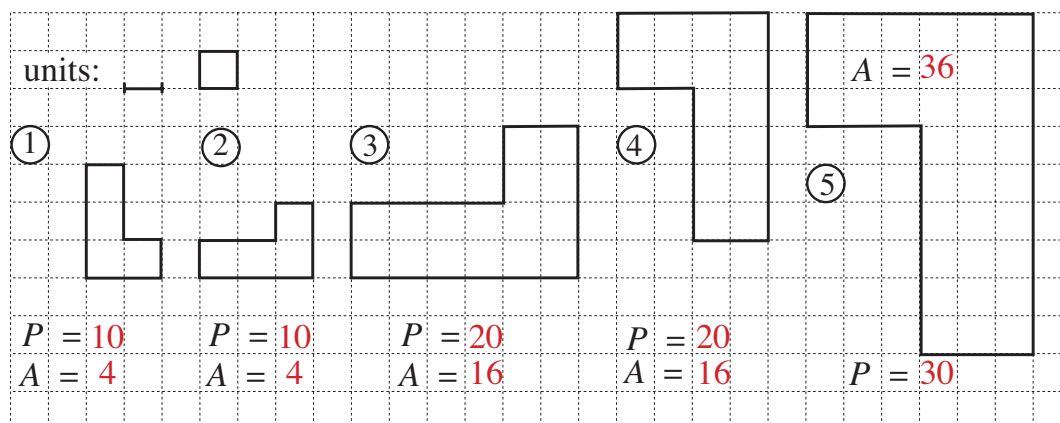
b)   What have we done to each shape to make the next shape?

① Rotation by 1 right angle   ② Enlargement x 2

③ Rotation by 1 right angle   ④ Enlargement by 1 and a half

3

i)   ii)   iii)   iv)
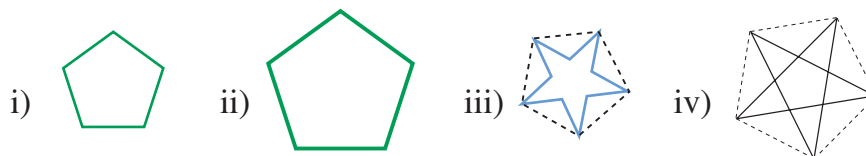
a)   Draw over in *green* the sides of the regular pentagons in i) and ii).

b)   Colour *blue* the 5-pointed star in iii).

c)   How many triangles, quadrilaterals and pentagons can you see inside the solid lines in iv)?

10 triangles;   10 quadrilaterals;   6 pentagons

d)   Try to make a pentagon from a strip of paper like this.
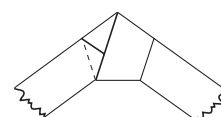
1 Write the real distances on the sections below each map scale.

a)
```
0    2    4    6    8    10
```
km

1600 m

5 km

9 km

b)
```
0    200   400   600   800   1000
```
m

160 m

500 m

900 m
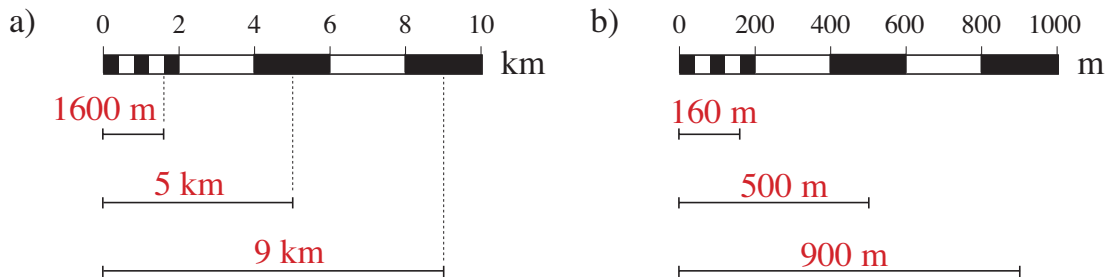
2 Draw 2 parallel lines so that their distance apart is:

a) 2 cm

2 cm

b) 2 and a half cm

25 mm

c) 35 mm

35 mm
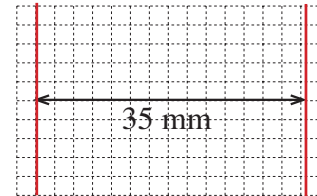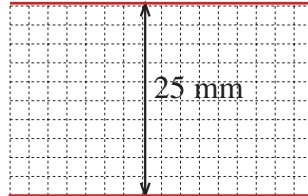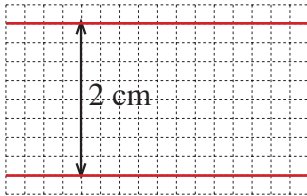
3 Which compass point would we reach if we:

a) faced NW then turned 1 right angle to the right ......NE.....

b) faced SE and turned 1 and a half right angles to the left ......N.....

c) faced SW and turned 2 right angles to the right ......NE.....

d) faced NE and turned half a right angle to the right? ......E.....

4 On each side of a cuboid-shaped box there is a different symbol.

3 faces of the box look like this.
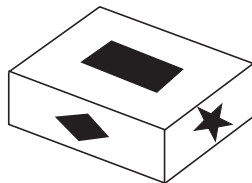
The other 3 faces look like this.
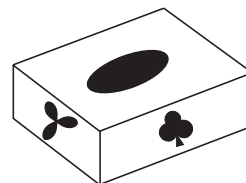
After cutting along some edges, we flattened out the box and got this net.

Draw the other symbols on
the correct faces.
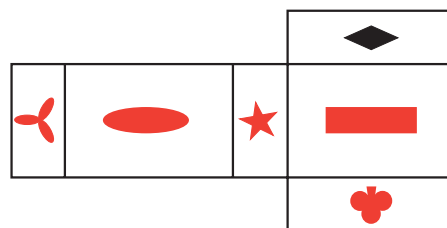
1 Write a number in the box so that the statement is true.

a) $27 \times 100 = 270 \times$ [10]

  $49 \times 100 = 4900 \times$ [1]

  $60 \times 100 = 1000 \times$ [6]

  $34 \times 100 = 10 \times$ [340]

  $92 \times 100 = 920 \times$ [10]

b) $130 \times 100 = 13 \times$ [1000]

  $19 \times 1000 = 1900 \times$ [10]

  $160 \times 100 = 10 \times$ [1600]

  $20 \times 1000 = 100 \times$ [200]

  $17 \times 1000 = 170 \times$ [100]

2 Do the operations in the correct order. Be careful with the brackets!

a) $700 + 300 \times 5 =$ 2200 $(700 + 300) \times 5 =$ 5000

b) $550 - 50 \times 9 =$ 100 $(550 - 50) \times 9 =$ 4500

c) $200 + 300 \times 40 =$ 12200 $(200 + 300) \times 40 =$ 20000

d) $470 - 70 \times 5 =$ 120 $(470 - 70) \times 5 =$ 2000

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

a) $18 \div 6 =$ 3 $180 \div 60 =$ 3 $1800 \div 600 =$ 3

  $180 \div 6 =$ 30 $1800 \div 60 =$ 30 $18\,000 \div 600 =$ 30

  $1800 \div 6 =$ 300 $18\,000 \div 600 =$ 30 $18\,000 \div 6000 =$ 3

b) $20 \div 4 =$ 5 $200 \div 40 =$ 5 $2000 \div 400 =$ 5

  $200 \div 4 =$ 50 $2000 \div 40 =$ 50 $20\,000 \div 400 =$ 50

  $2000 \div 4 =$ 500 $20\,000 \div 40 =$ 500 $20\,000 \div 4000 =$ 5

4 a) Write how you estimate mentally, then do the multiplication.
Compare the product with the estimated result.

i) $2351 \times 6 =$

  E: $2\,4\,0\,0 \times 6 = 1\,4\,4\,0\,0$

C:		2	3	5	1
				×	6
		1	4	1	0	6

ii) $1278 \times 7 =$

  E: $1\,3\,0\,0 \times 7 = 9\,1\,0\,0$

C:		1	2	7	8
				×	7
			8	9	4	6

b) $8654 \div 4 =$ 2163 r 2

  Estimate, calculate then check the result in your exercise book.

1 Do the calculations in the correct order and compare the results.

a) $180 \times 6 - 5 = 1075$ $(180 - 6) \times 5 = 870$

$180 \times 5 - 6 = 894$ $(180 - 5) \times 6 = 1050$

$180 \times 6 - 5 \times 6 = 1050$ $180 - 6 \times 5 = 150$

$180 \times 5 - 6 \times 5 = 870$ $180 \times (6 - 5) = 180$

b) $200 \times 4 + 5 = 805$ $(200 + 4) \times 5 = 1020$

$200 \times 5 + 4 = 1004$ $(200 + 5) \times 4 = 820$

$200 \times 5 + 4 \times 5 = 1020$ $200 + 4 \times 5 = 220$

$200 \times 4 + 5 \times 4 = 820$ $200 \times (4 + 5) = 1800$

2 Do the calculations in the correct order and compare the results.

a) $1600 \div 8 - 2 = 198$ b) $1600 \div 8 \times 2 = 400$

$1600 \div (8 - 2) = 266 \ r \ 4$ $1600 \div (8 \times 2) = 100$

$1600 \div 2 - 8 = 792$ $1600 \div 2 \times 8 = 6400$

$(1600 - 8) \div 2 = 796$ $1600 \times 2 \div 8 = 400$

$1600 - 8 \div 2 = 1596$ $(1600 \div 8) \times 2 = 400$

$1600 \div 2 - 8 \div 2 = 796$ $1600 \times 8 \div 2 = 6400$

$1600 \times (8 \div 2) = 6400$

3 Solve the problems in your exercise book. Do not forget any steps!

a) If there are 7 kg of beans in each box, how many kg of beans are in 1205 boxes?   There are 8435 kg of beans in 1205 boxes.

b) How many kg do 405 bricks weigh if each brick weighs 8 kg?
          405 bricks would weigh 3240 kg.

4

```
        8  7  5  r 4
  7 | 6  1  2  9
  −  5  6
        5  2
     −  4  9
           3  9
        −  3  5
              4
```

E: $5600 \div 7 = 800$
      $6300 \div 7 = 900$
      So estimate is between 800 and 900.

Check:

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

1 Write a plan, calculate and check the result in your exercise book. Write the answer as a sentence below.

a) Workmen are laying square floor tiles on the kitchen floor.

They can fit 14 tiles along one side of the kitchen and 30 tiles along the adjoining side. How many tiles are needed to cover the floor?

Answer: 420 tiles are needed to cover the floor.

b) Donna has 130 buttons and Liz has 4 times more. How many buttons does Liz have?

Answer: Liz has 520 buttons.

c) How much honey did the owner of the beehive collect if he stored 160 kg, which was 1 sixth of the honey, for feeding the bees during the winter?

Answer: The owner collected 960 kg of honey.

2 Write your plan here. Do the calculation and check the result in your exercise book. Write the answer as a sentence here.

a) Fred's age is 1 fifth of the age of his grandmother.
How old is Fred if his grandmother is 65 years old? *Plan*: 65 years ÷ 5

Answer: Fred is 13 years old.

b) Bella has £720, which is 8 times as much as Paula has.
How much does Paula have? *Plan*: £720 ÷ 8

Answer: Paula has £90.

c) The farmer's wife packed 480 eggs into boxes which could hold 6 eggs. How many boxes did she need? *Plan*: 480 eggs ÷ 6 eggs

Answer: She needed 80 boxes.

d) Diana left the country 210 days ago. How many weeks have gone by since then? *Plan*: 210 days ÷ 7 days

Answer: 30 weeks have gone by.

3 *Sam Snail* was invited to his friend's house, which is 804 m from *Sam*'s house. *Sam* left home at 8 am. He arrived not before 11 am but not after 12 noon.

a) What is the **least** number of metres that *Sam* could have gone every hour?

The least number of metres that Sam could have gone every hour is 201 m.

b) What is the **most** number of metres that *Sam* could have gone every hour?

The most number of metres Sam could have gone every hour is 268 m.

1 Estimate in your head first, then do the multiplication.

a)

	8	9	7
	×		6
5	3	8	2

	5	0	7
	×		9
4	5	6	3

	5	1	6
	×		8
4	1	2	8

	4	7	6
	×		7
3	3	3	2

b)

3	1	0	6
	×		3
9	3	1	8

4	0	5	7
	×		2
8	1	1	4

1	3	5	6
	×		7
9	4	9	2

5	6	3	4
	×		5
2	8	1	7	0

2 Estimate in your head first, then do the division. Check your result.

a)

```
      2 2 6
3  6  7 8
 – 6
    0 7
    – 6
      1 8
    – 1 8
        0
```

```
      1 1 5 7  r 1
3  3  4 7 2
 – 3
    0 4
    – 3
      1 7
    – 1 5
        2 2
      – 2 1
          1
```

```
      6 4 2  r 4
6  3  8 5 6
 – 3 6
      2 5
    – 2 4
        1 6
      – 1 2
          4
```

Checks:

226 x 3 = 678

1157 x 3 + 1 = 3472

642 x 6 + 4 = 3856

b)

```
      9 9  r 2
5  4  9 7
 – 4 5
      4 7
    – 4 5
        2
```

```
      8 6
7  6  0 2
 – 5 6
      4 2
    – 4 2
        0
```

```
      5 7 6  r 4
7  4  0 3 6
 – 3 5
      5 3
    – 4 9
        4 6
      – 4 2
          4
```

99 x 5 + 2 = 497

86 x 7 = 602

576 x 7 + 4 = 4036

3 Write the operation here. Estimate in your head, then do the calculation in your exercise book. Write the result again here.

a) What is four times as much as three times 675? 675 x 3 x 4 = 8100 . . . .

b) What is nine times as much as twice 591? 591 x 2 x 9 = 10638 . . .

c) What is half of 1 fifth of 3720?

3720 ÷ 5 ÷ 2 = 372 . . . .

1 Fill in the missing numbers and signs.

a) $45 \xrightarrow{+37} \boxed{82} \xrightarrow{-70} 12 \xrightarrow{+320} \boxed{332} \xrightarrow{+127} \boxed{459} \xrightarrow{+32} 491$

b) $5093 \xrightarrow{-410} \boxed{4683} \xrightarrow{+77} 4760 \xrightarrow{+1050} \boxed{5810} \xrightarrow{-2205} \boxed{3605} \xrightarrow{+4395} 8000$

c) $75 \xrightarrow{\div 3} \boxed{25} \xrightarrow{\times 4} 100 \xrightarrow{\times 80} \boxed{8000} \xrightarrow{\div 20} \boxed{400} \xrightarrow{\times 15} 6000$

d) $400 \xrightarrow{\div 8} \boxed{50} \xrightarrow{+204} 254 \xrightarrow{\times 2} \boxed{508} \xrightarrow{\times 4} \boxed{2032} \xrightarrow{-132} 1900$

2 Fill in the missing numbers.

a) $3800 + 1500 = 2800 + \boxed{2500}$ b) $7200 - 3500 = 6200 - \boxed{2500}$

c) $4700 + 2600 = 6700 + \boxed{600}$ d) $8100 - 4700 = 9100 - \boxed{5700}$

e) $1600 + 6900 = 2000 + \boxed{6500}$ f) $6400 - 2800 = 6000 - \boxed{2400}$

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

a)

150
9909 50 6000
3303 **3** 2000
190 210
570 150 630
450

b)

420		35
2800	60 5	1050
	400 150	
	20 **7**	
140	12 2 700	4900
84		14

4

a)

```
    9 4 7          1 1 8 6          2 0 6 1          1 8 0 4
    ×   3          ×     8          ×     5          ×   1 0
  2 8 4 1        9 4 8 8        1 0 3 0 5        1 8 0 4 0
```

b)

```
      1 2 1 5 r 4        1 1 7 5 r 7          8 3 3 r 2            2 9 1
  5 | 6 0 7 9        8 | 9 4 0 7        3 | 2 5 0 1        1 0 | 2 9 1 0
    − 5                − 8                − 2 4                − 2 0
      1 0                1 4                  1 0                  9 1
    − 1 0              −   8                −   9                − 9 0
      0 7                6 0                  1 1                  1 0
      − 5              − 5 6                −   9                − 1 0
        2 9                4 7                  2                    0
      − 2 5              − 4 0
          4                  7
```

1 Measure the different distances 'as the crow flies' on the map.

Calculate the **real** distances if they are 1000 times the map measurements.

Complete the table.
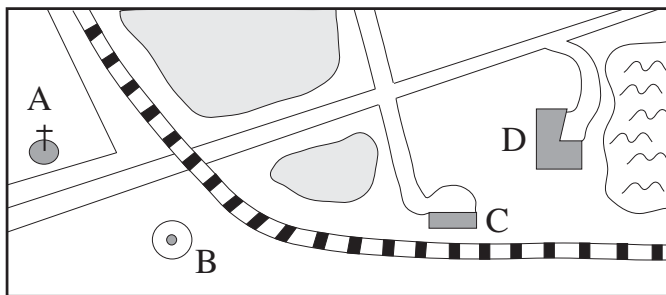
Journey	Distance on map	Real distance
AB ≈	16 mm	16 m
AC ≈	50 mm	50 m
AD ≈	63 mm	63 m
BC ≈	32 mm	32 m
BD ≈	47 mm	47 m
CD ≈	10 mm	10 m

2 Solve the problems in your exercise book.

a) The sum of two terms is 8061. One term is 2354.
What is the other term? $8061 - 2354 = \underline{5707}$

b) The difference is 3425. The reductant is 8106.
What is the subtrahend? $8106 - 3425 = \underline{4681}$

c) The difference is 3425. The subtrahend is 8106.
What is the reductant? $8106 + 3425 = \underline{11531}$

d) The product is 8500. One factor is 4.
What is the other factor? $8500 \div 4 = \underline{2125}$

3

e) The quotient is 582 and the divisor is 6.
What is the dividend? $582 \times 6 = \underline{3492}$

4 Calculate the operations in a simpler way.

a)
```
  1 3 4 5
  1 3 4 5
  1 3 4 5
  1 3 4 5
  1 3 4 5
  1 3 4 5
  1 3 4 5
+ 1 3 4 5
```
       $1345 \times 8 = 10760$

b) $6500 - (710 + 710 + 710 + 710 + 710)$
$= 6500 - (710 \times 5) = 2950$

c) $8400 \div 2 \div 2 \div 2 = 8400 \div 8 = 1050$

d) $723 \times 3 \times 3 = 723 \times 9 = 6507$

1 Fill in the missing numbers if:

⟹ means + 2400   and   ⟶ means – 300

2500		4600		6700		8800

2200		4300		6400		8500
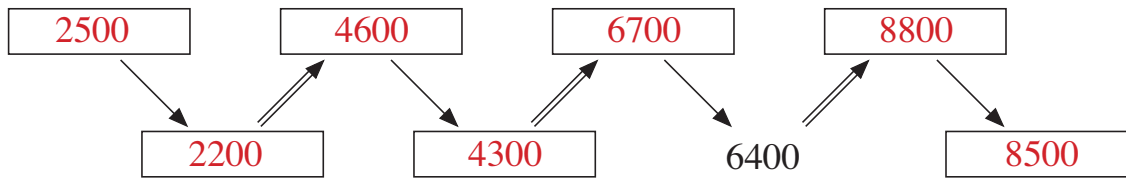
2

a)

i)
```
   3 4 3 6
 + 5 3 4 2
   8 7 7 8
```

ii)
```
   5 6 7 8
 + 4 2 8 1
   9 9 5 9
```

iii)
```
   3 7 0 5
 + 4 1 3 8
   7 8 4 3
```

iv)
```
    3 7 1 6
 +  8 3 9 5
  1 2 1 1 1
```

b)

i)
```
   6 5 2 8
 − 2 4 0 5
   4 1 2 3
```

ii)
```
   4 1 7 3
 − 1 0 4 6
   3 1 2 7
```

iii)
```
   7 0 5 9
 − 4 2 6 5
   2 7 9 4
```

iv)
```
 1 2 3 4 5
 − 3 4 2 9
     8 9 1 6
```

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

a)
```
            5990
        2790    3200
     1300   1490   1710
   650   650   840   870
```

b)
```
            8040
        3600    4440
     1900   1700   2740
   1090   810   890   1850
```

4

a)
i)
```
  1 1 9 5
 ×     5
  5 9 7 5
```

ii)
```
  3 0 1 8
 ×     3
  9 0 5 4
```

iii)
```
  1 2 5 1
 ×     6
  7 5 0 6
```

iv)
```
    2 1 6 8
 ×       9
  1 9 5 1 2
```

b)
i)
```
        2 0 1 5
  4 ) 8 0 6 0
    − 8
      0 0
    −   0
        0 6
      −   4
          2 0
        − 2 0
            0
```

ii)
```
        1 3 8 9 r 3
  7 ) 9 7 2 6
    − 7
      2 7
    − 2 1
        6 2
      − 5 6
          6 6
        − 6 3
            3
```

iii)
```
        7 4 0 r 4
  6 ) 4 4 4 4
    − 4 2
        2 4
      − 2 4
          0 4
        −   0
            4
```
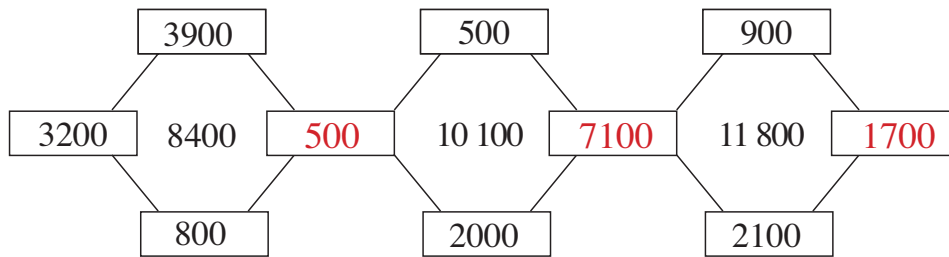
iv)
```
        1 6 0 8
  8 ) 1 2 8 6 4
    − 8
      4 8
    − 4 8
        0 6
      −   0
          6 4
        − 6 4
            0
```

1

The number in the middle is the sum of the 4 numbers around it.
Fill in the missing numbers.

	3900			500			900	
3200	8400	500	10 100	7100	11 800	1700		
	800			2000			2100	

2

Mr. Silly did his divisions like this. Try to understand *Mr. Silly*'s reasoning.

a) $4136 \div 4 = 134$ b) $9751 \div 3 = 325$ c) $6375 \div 5 = 12075$

013   0 left out   07   0 left out;   13   should not be
   16   15   remainder 1   37   a 0 here
                                   01   left out   25
                                                                    0

Check whether he is correct by estimation. Write a ✓ if correct and a ✗ if wrong.
Circle where he has made a mistake and do the calculation again correctly.

Corrections:

a) $4000 \div 4 = 1000$ b) $9000 \div 3 = 3000$ c) $6000 \div 5 = 1200$

$4136 \div 4 = 1034$ $9751 \div 3 = 3250 \text{ r } 1$ $6375 \div 5 = 1275$

3

Which is more? How many more? Write the correct sign and the difference.

a) $697 \times 3 + 802 \times 8$ > $697 \times 8 - 802 \times 3$

5337

b) $268 \times 7 + 144 \times 9$ > $268 \times 9 - 144 \times 7$

1768

c) $2357 \times 6 - 469 \times 4$ > $2357 \times 4 + 469 \times 6$

24

4

Calculate the operations in the correct order.

a) $843 + 248 \times 9 = 3075$ b) $7548 - 1212 \div 6 = 7346$

$(843 + 248) \times 9 = 9819$ $(7548 - 1212) \div 6 = 1056$

$843 \times 9 + 248 = 7835$ $7548 \div 6 - 1212 = 46$

1

Make a plan, estimate, calculate, check and write the answer as a sentence.

a) Helen had £3600 in her bank account and George had £2900. Each of them earned another £1500. Who has more money now and how much more?

Plan: Each now has £1500 more than they had at the start.
C: 3600 – 2900 = 700
Answer: Helen still has £700 more than George.

b) Uncle Jack had £5400 and Aunt Molly had £4500. They each spent £1700. Who has more money left and how much more?

Plan: Each now has £1700 less than they had at the start.
C: 5400 – 4500 = 900
Answer: Uncle Jack still has £900 more left than Aunt Molly.

2

Solve the problems.

a) Fred gathered 3456 kg of green apples, 9576 kg of red apples and 986 kg of plums from his orchard. How much fruit did Fred gather altogether?

Plan: 3456 kg + 9576 kg + 986 kg   *E*: 3000 + 10000 + 1000 = 14000
C: 3456 + 9576 + 986 = 14018
Answer: Fred gathered 14018 of fruit altogether.

b) There were 10482 litres of water in a tank. The farmer used 7856 litres of the water to spray his fields. How much water was left in the tank?

Plan: 10482 litres – 7856 litres   *E*: 10000 – 8000 = 2000
C: 10482 – 7856 = 2626
Answer: There were 2626 litres of water left in the tank.

3

Solve the problems.

a) A box full of apples weighs 39 kg. How many kg of apples are there in 80 boxes if an empty box weighs 5 kg?

Apples in 1 box: 39 kg – 5 kg = 34 kg
Apples in 80 boxes: 34 kg x 80 = 2720 kg
Answer: There are 2720 kg of apples in 80 boxes.

b) How much do 19 jars of honey cost if each jar costs 680 p?

Plan: 1 jar: 680 p   19 jars: 680 p x 19
C: 680 p x 19 = 12920 p = £129.20
Answer: 19 jars of honey cost £129.20.

c) If 8 metres of material cost 4800 p, how much will 2 metres cost?

1 m: 4800 p ÷ 8 = 600 p
2 m: 600 p x 2 = 1200 p = £12
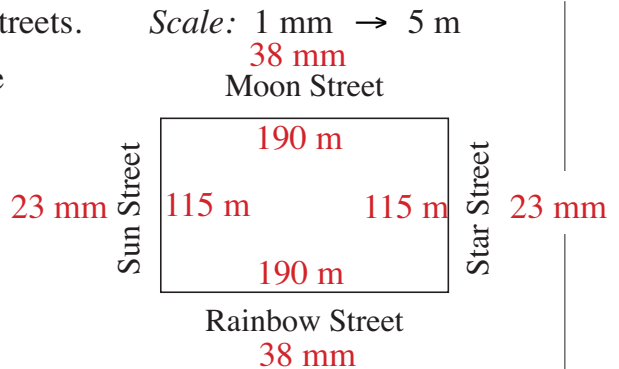*Answer*: 2 metres of material will cost £12.

1 This sketch shows a park surrounded by 4 streets. *Scale:* 1 mm → 5 m

Sarah started at one corner and followed the railings all the way around the edge of the park back to where she started.

How far did Sarah walk?

P: (115 m + 190 m) x 2 = 610 m

Answer: Sarah walked 610 m.

38 mm
Moon Street

190 m

Sun Street

23 mm | 115 m   115 m | 23 mm

Star Street

190 m
Rainbow Street
38 mm

2 This sketch shows a bicycle route through a wood. *Scale:* 1 mm → 100 m

Estimate, then measure the length of the route on the sketch with the help of a strip of paper.

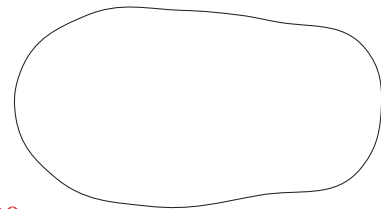Calculate the length of the route in real life.

E: 130 mm
M: 128 mm

C: 128 m x 100 = 12800 m (approximately) = 12 km 800 m

The actual length of the rope is 12 km 800 m (approximately).

.

3 Make a plan, estimate, calculate, check and write the answer as a sentence.

a) *Bubbletown* has 6718 inhabitants, which is 2576 less than *Sudsville* has.
    If 1289 people moved from *Sudsville* to *Bubbletown*, which town
    would have more people and how many more?
    B: Now has 6718   S: Now has 6718 + 2576 = 9294
        would have 6718 + 1289 = 8007   would have 9294 – 1289 = 8005

    Bubbletown would have 2 more people than Sudville.

b) How much do 8 metres of curtain material cost if 1 m costs 2400 p?
    1 m costs 2400 p   2 4 0 0 x 8
    8 m of curtain material costs 2400 x 8 p = 19200 p   1 9 2 0 0
                                    (= £192)

c) Steve spent 1 third of his savings, £6500, on a new car.
    i)   How much money did Steve have originally?
    ii)   How much money does he have left?
    Spent: 1 third → £6500   Had originally: 3 thirds → £6500 x 3 = £19500
    Had left: 2 thirds → £6500 x 2 = £13000

    Steve had £19500 originally and has £13000 left.

d) Helen bought 4 matchbox cars for each of her two brothers.
    She spent 2400 p altogether. How much was each car?
    Bought: 4 cars x 2 = 8 cars   Spent: 2400 p = £24
    8 cars cost £24
    1 car cost £24 ÷ 8 = £3

    Each car cost £3.

.

1 Underline the important data. Write a plan here. Do the calculation and check it in your exercise book. Write the answer as a sentence here.

a) To celebrate the 250th anniversary of a school, <u>1260</u> guests were invited to a reception but only <u>987</u> attended.

How many people did not attend?   *Plan:* 1260 – 987

Answer: 273 people did not attend.

b) In a primary school, <u>120 pupils</u> went to at least one workshop on <u>Monday</u> and <u>80 pupils</u> went to at least one workshop on <u>Tuesday</u>. Each pupil went to a workshop at least once.

How many pupils might go to this school?   *Plan:* Least no. pupils = 120
Greatest no. = 120 + 80

Answer: The number of pupils who go to this school is equal to or more than 120 and less than or equal to 200.

c) <u>Nine</u> of the same type of machine were put on a weighbridge before being loaded on to a train. The reading on the scale was <u>8577 kg</u>. The cost of the transport was £171.

What did each machine weigh?   *Plan:* 8577 kg ÷ 9

Answer: Each machine weighed 953 kg.

---

2 Solve these problems in your exercise book.

a) Charlie bought 6 kg 720 g of apples. Linda bought 7 kg 150 g more than Charlie. What weight of apples did Linda buy?
Linda bought 13 kg 870 g of apples.

b) After 5 m 44 cm was cut off a length of ribbon, 6315 mm was left.
How long was the ribbon to begin with?
The length of the ribbon was 11 m 75 cm 5 mm.

c) Alex cycled at the same speed for 7 minutes. How far did he travel if he covered 352 m every minute?
Alex travelled 2 km 464 m.

d) The valve on a tank was left open by mistake and 8 litres of water flowed out every second.
The tank was empty after 547 seconds but in the final second only 2 litres of water flowed out. How much water was in the tank to begin with?
There were 4370 litres in the tank to begin with.

---

3 Is there enough data to answer the question? If there is, solve it.

a) Jenny was born on the 1st of May and weighed 3180 g.
On the morning of the 25th of July she weighed 5 kg 615 g.
How many days old was she on the 25th of July? ✓
How much weight had she put on since she was born? ✓
On 25th July Jenny was 86 days old. She had put on 2 kg 435 g.

b) They let out 2356 litres of water from a dam on Sunday. On Monday they let out 7105 litres. How much water did they let out during the 2 days? ✓
How many litres of water are still in the dam? ✗   Not enough information to
During the 2 days they let out 9461 litres of water.   solve second problems.

1

Make a plan, estimate, calculate, check and write the answer in your exercise book.

a) They put 3800 kg of meat into each of two vans. Then they put an extra 1600 kg of meat into one van and took out 500 kg of meat from the other. How much more meat did one van carry than the other van?
The first van carried 2100 kg more than the other.

b) A lorry can carry, at most, 2100 kg of wood. How much wood could have been moved by the lorry after it has made 9 journeys?
The lorry could have moved 18900 kg of wood.

c) In an orchard, 8706 kg of apples and 6954 kg of pears were picked.
The apples were put into nets which could hold 8 kg each.
The pears were packed into boxes which could hold 6 kg each.
They filled 876 nets of apples and 876 boxes of pears.
Which fruit did they have more of left over? How much more?
They had the same quantity of each fruit left over.   (1698 kg)

d) Leslie has saved £2856 and Ann has saved 6 times that amount.
How much money does Ann have?
Ann has £17136.

e) Emma has £3756 in her bank account, which is 6 times the amount that David has. How much money is in David's bank account?
David has £626 in his bank account.

f) This month, Paul has earned £2145, which is 1 seventh of the amount that he had in his bank account at the beginning of the month.
How much did he have in his bank account at the beginning of the month?
Paul had £15015 in his bank account at the beginning of the month.

g) Chris had saved £16 247. He spent 1 seventh of it on a holiday.
   i) How much money did he spend on his holiday? Chris spent £2321.
   ii) How much money does he have left? Chris has £13926 left.

h) A motorcyclist covered 11 064 m in 8 minutes.
A cyclist covered 2290 m in the same time.
How much further did the motorcyclist travel than the cyclist?
The motorcyclist travelled 8 km 774 m further.

2

Write T in the box if you think the statement is true and F if you think it is false.

a) 20 cl of sugar weighs the same as 20 cl of flour. F

b) 1 litre of water weighs the same as 1 litre of flour. F

c) 1 kg of salt takes up less space than 1 kg of sugar. T

d) 1 kg of flour weighs more than 1 kg of salt. F

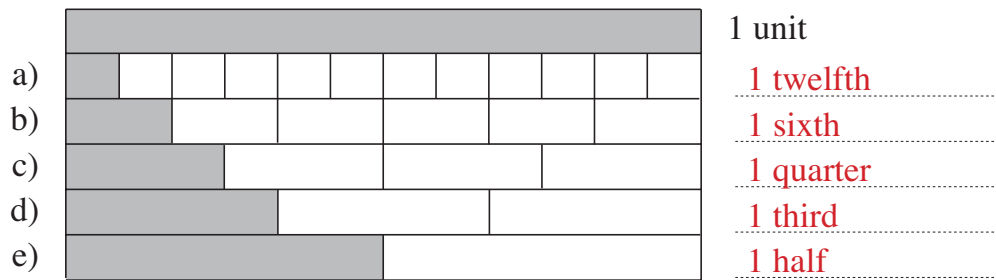e) A 10 cm cube made from wood takes up less space than a 10 cm cube made from marble. F

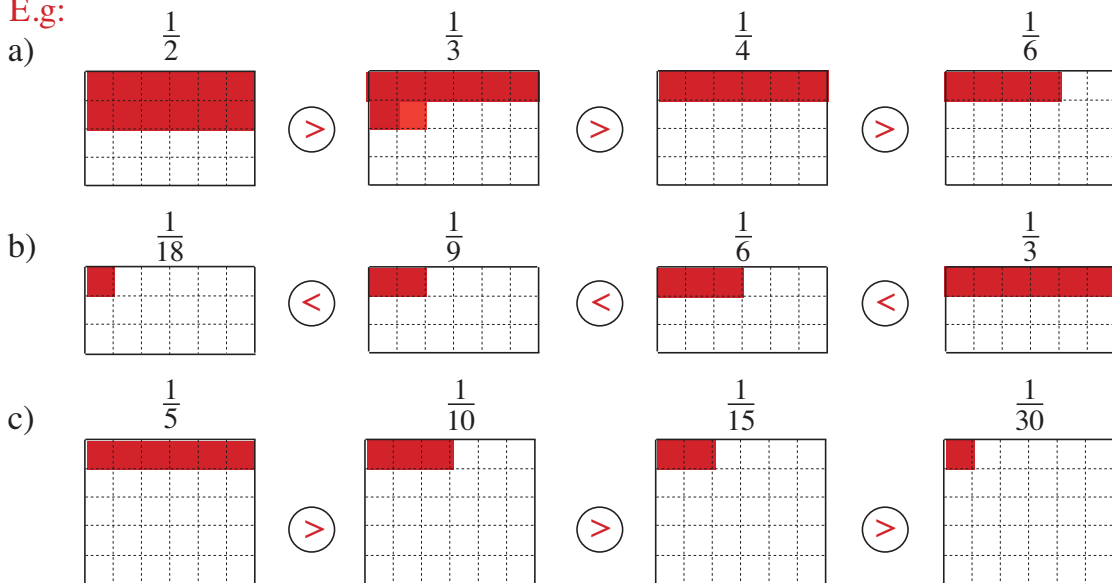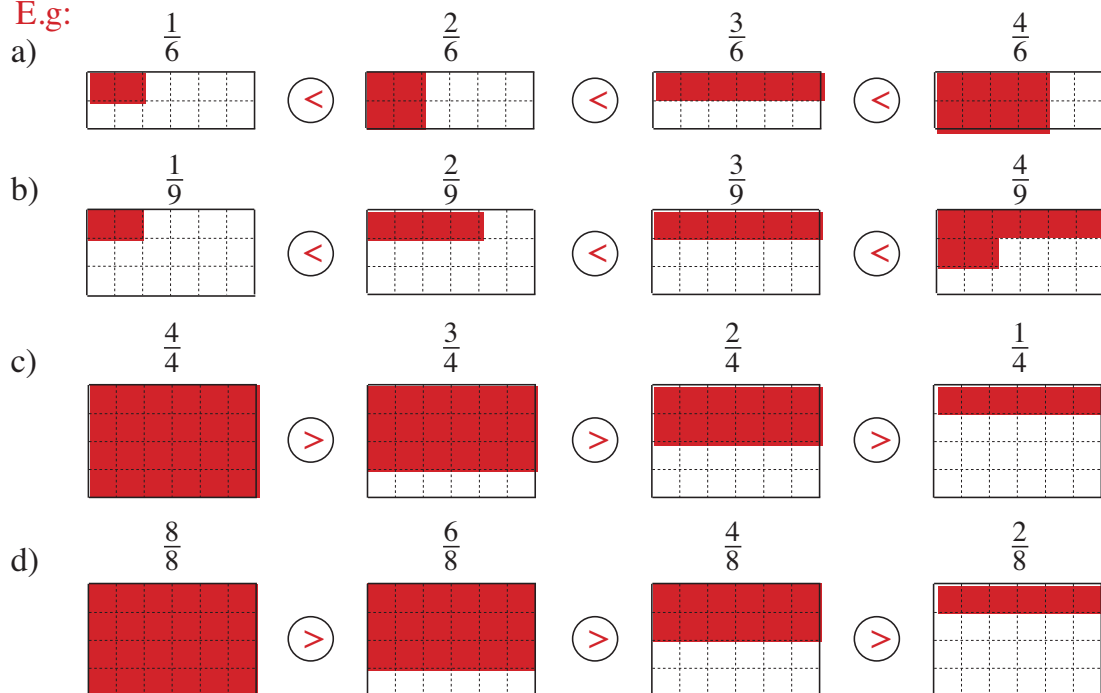**1** A strip of paper is 1 unit long. What is the value of each shaded part?

1 unit

a) 1 twelfth

b) 1 sixth

c) 1 quarter

d) 1 third

e) 1 half

2 Each rectangle is 1 unit. Colour the parts shown and compare them.

E.g:

a) $\frac{1}{2}$ > $\frac{1}{3}$ > $\frac{1}{4}$ > $\frac{1}{6}$

b) $\frac{1}{18}$ < $\frac{1}{9}$ < $\frac{1}{6}$ < $\frac{1}{3}$

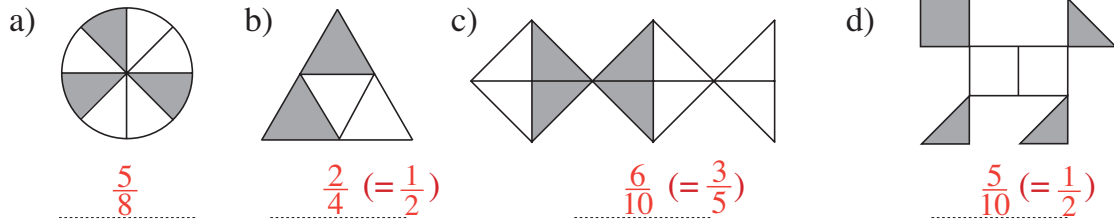c) $\frac{1}{5}$ > $\frac{1}{10}$ > $\frac{1}{15}$ > $\frac{1}{30}$

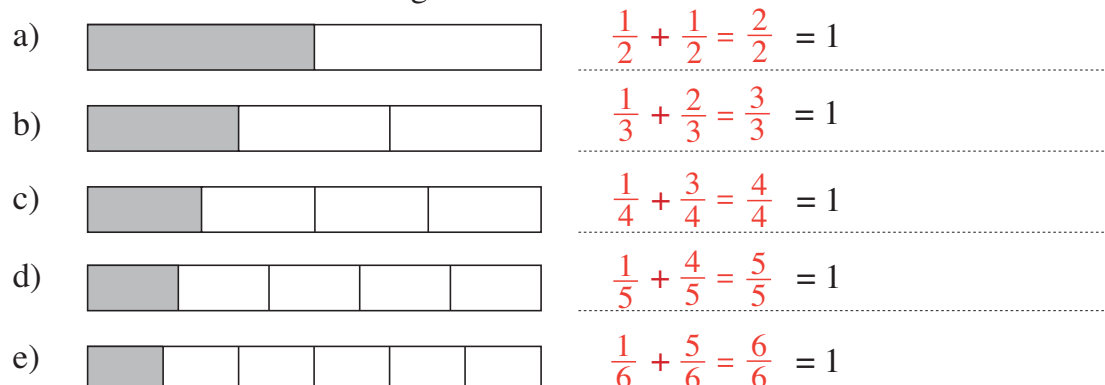**3** The area of each rectangle is 1 unit. Colour the parts shown and compare them.

E.g:

a) $\frac{1}{6}$ < $\frac{2}{6}$ < $\frac{3}{6}$ < $\frac{4}{6}$

b) $\frac{1}{9}$ < $\frac{2}{9}$ < $\frac{3}{9}$ < $\frac{4}{9}$

c) $\frac{4}{4}$ > $\frac{3}{4}$ > $\frac{2}{4}$ > $\frac{1}{4}$

d) $\frac{8}{8}$ > $\frac{6}{8}$ > $\frac{4}{8}$ > $\frac{2}{8}$

1 Each diagram is 1 unit. What part is **not** shaded?

a)

b)

c)

d)

$\frac{5}{8}$

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

$\frac{6}{10}$ $(=\frac{3}{5})$

$\frac{5}{10}$ $(=\frac{1}{2})$

2 Each shape is 1 unit. Colour the fractions shown and compare them.

E.g:

a)

$\frac{1}{12}$ $\frac{1}{6}$ $\frac{1}{4}$ $\frac{1}{3}$

< < <

b)

$\frac{1}{2}$ $\frac{1}{5}$ $\frac{1}{10}$ $\frac{1}{20}$

> > >
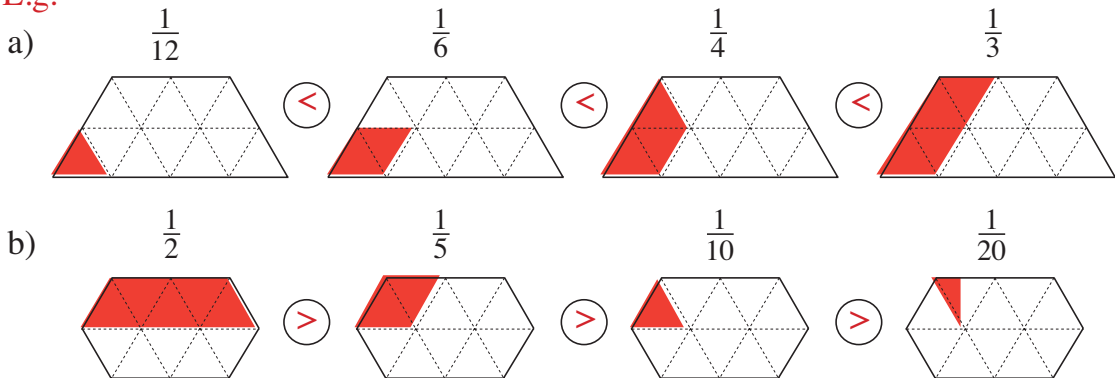
3 Draw **1 unit** if the diagram is the fraction of a unit shown.

a)   b)   c)   d)

$\dfrac{1}{2}$ $\dfrac{1}{3}$ $\dfrac{1}{4}$ $\dfrac{2}{3}$

e)   f)   g)   h)

2 units   3 units $\dfrac{2}{4}$ $\dfrac{3}{2}$
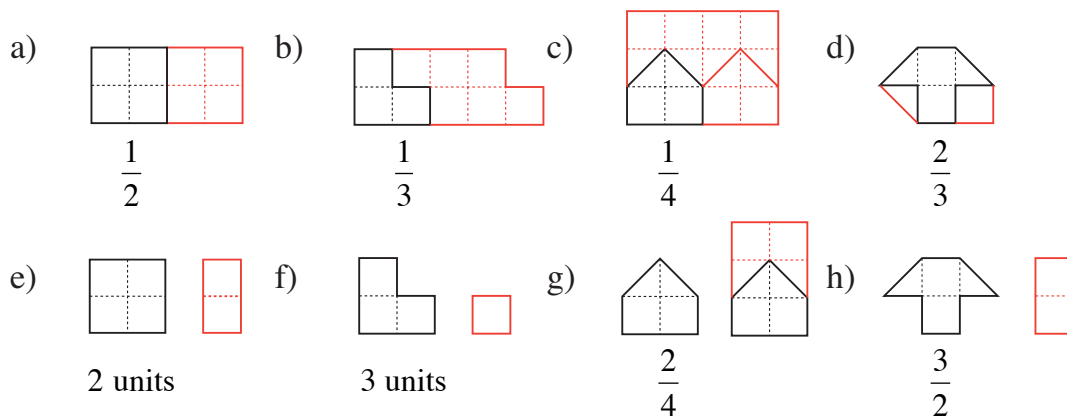
4 Write additions about the diagrams.

a)

$\frac{1}{2} + \frac{1}{2} = \frac{2}{2}$ = 1

b)

$\frac{1}{3} + \frac{2}{3} = \frac{3}{3}$ = 1

c)

$\frac{1}{4} + \frac{3}{4} = \frac{4}{4}$ = 1

d)

$\frac{1}{5} + \frac{4}{5} = \frac{5}{5}$ = 1
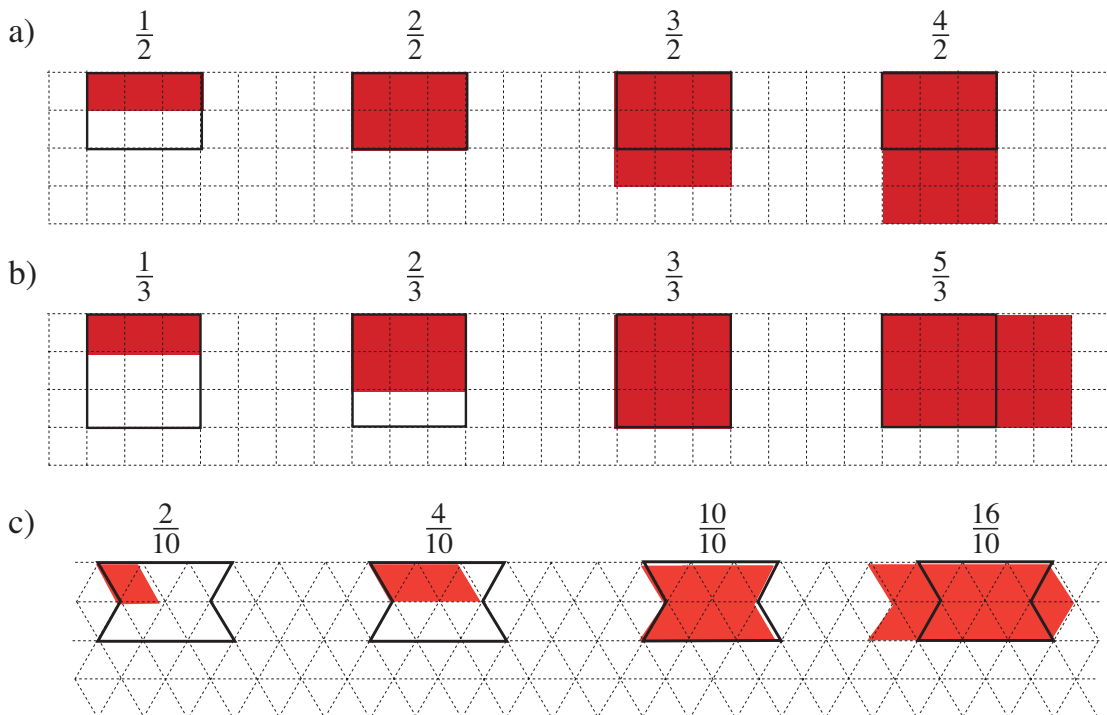
e)

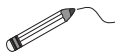$\frac{1}{6} + \frac{5}{6} = \frac{6}{6}$ = 1

1 Each large square is 1 unit. What part of the unit is shaded? Is it more or less than 1 half, or equal to 1 half? Write the fraction and the missing sign.

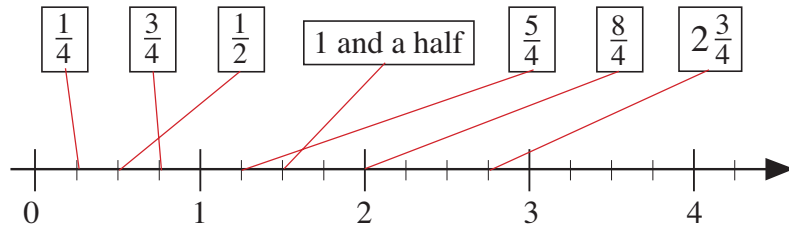a) b) c) d) e) f)

$\dfrac{8}{16}$ $\boxed{=}$ $\dfrac{1}{2}$ $\dfrac{6}{16}$ $\boxed{<}$ $\dfrac{1}{2}$ $\dfrac{7}{16}$ $\boxed{<}$ $\dfrac{1}{2}$ $\dfrac{10}{16}$ $\boxed{>}$ $\dfrac{1}{2}$ $\dfrac{9}{16}$ $\boxed{>}$ $\dfrac{1}{2}$ $\dfrac{8}{16}$ $\boxed{=}$ $\dfrac{1}{2}$
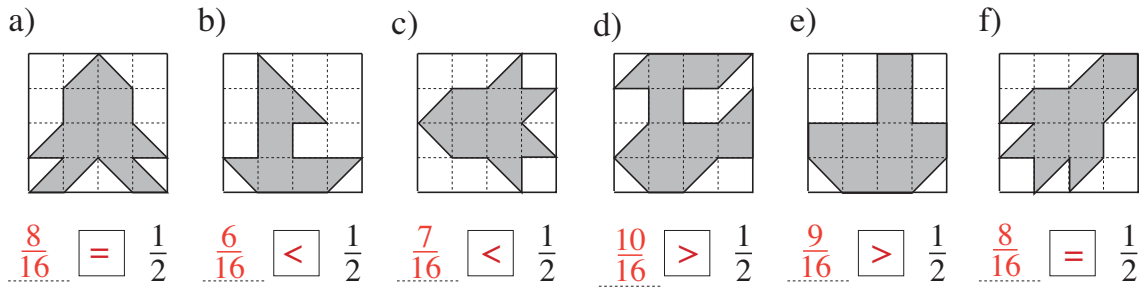
2 Each shape is 1 unit. Colour the fraction shown above each unit.

a) $\dfrac{1}{2}$ $\dfrac{2}{2}$ $\dfrac{3}{2}$ $\dfrac{4}{2}$

b) $\dfrac{1}{3}$ $\dfrac{2}{3}$ $\dfrac{3}{3}$ $\dfrac{5}{3}$

c) $\dfrac{2}{10}$ $\dfrac{4}{10}$ $\dfrac{10}{10}$ $\dfrac{16}{10}$

a) to c): configuration of shapes coloured may vary; the number of squares/triangles coloured
must be accurate.

3 $\boxed{\dfrac{1}{4}}$ $\boxed{\dfrac{3}{4}}$ $\boxed{\dfrac{1}{2}}$ $\boxed{\text{1 and a half}}$ $\boxed{\dfrac{5}{4}}$ $\boxed{\dfrac{8}{4}}$ $\boxed{2\dfrac{3}{4}}$

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

0   1   2   3   4

4 $\dfrac{1}{2}$ litre = $\boxed{50}$ cl = $\boxed{500}$ ml $\dfrac{1}{5}$ litre = $\boxed{20}$ cl = $\boxed{200}$ ml

$\dfrac{5}{2}$ litre = $\boxed{250}$ cl = $\boxed{2500}$ ml $\dfrac{1}{10}$ litre = $\boxed{10}$ cl = $\boxed{100}$ ml

$\dfrac{3}{10}$ litre = $\boxed{30}$ cl = $\boxed{300}$ ml $\dfrac{1}{100}$ litre = $\boxed{1}$ cl = $\boxed{10}$ ml

$\dfrac{8}{100}$ litre = $\boxed{8}$ cl = $\boxed{80}$ ml $\dfrac{70}{100}$ litre = $\boxed{70}$ cl = $\boxed{700}$ ml
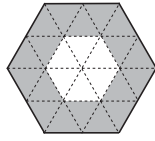
1 Each hexagon is 1 unit. What part of the unit is shaded? Is it more or less than 2 thirds, or equal to 2 thirds? Write the fraction and the missing sign.
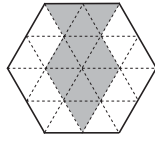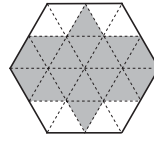
a)   b)   c)   d)   e)   f)
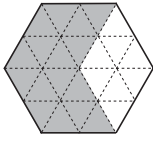
a) $\dfrac{16}{24}$ $=$ $\dfrac{2}{3}$ b) $\dfrac{18}{24}$ $>$ $\dfrac{2}{3}$ c) $\dfrac{10}{24}$ $<$ $\dfrac{2}{3}$ d) $\dfrac{16}{24}$ $=$ $\dfrac{2}{3}$ e) $\dfrac{14}{24}$ $<$ $\dfrac{2}{3}$ f) $\dfrac{17}{24}$ $>$ $\dfrac{2}{3}$
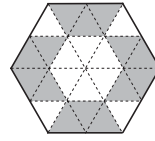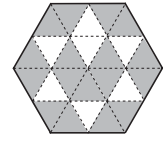
2 Write the fraction marked by each dot below the number line.

a)
0 $\dfrac{1}{8}$ $\dfrac{5}{8}$ 1 $1\dfrac{1}{4}$ 2 $2\dfrac{1}{2}$ 3

b)
0 $\dfrac{1}{2}$ 1 $1\dfrac{1}{2}$ 2 $2\dfrac{1}{2}$ 3

c)
0 $\dfrac{2}{3}$ 1 $1\dfrac{1}{3}$ $1\dfrac{2}{3}$ 2 $2\dfrac{2}{3}$ 3

d)
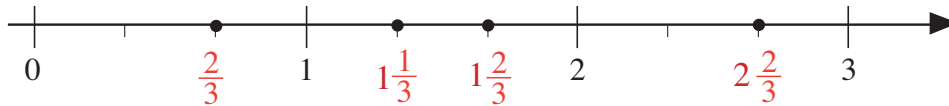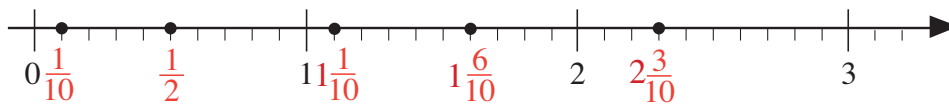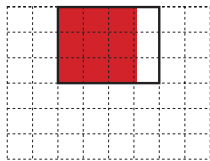$0\dfrac{1}{10}$ $\dfrac{1}{2}$ $1 1\dfrac{1}{10}$ $1\dfrac{6}{10}$ 2 $2\dfrac{3}{10}$ 3
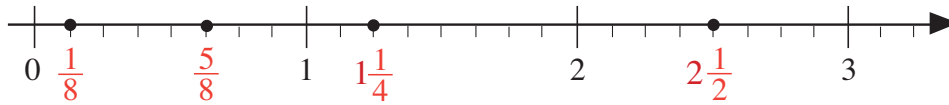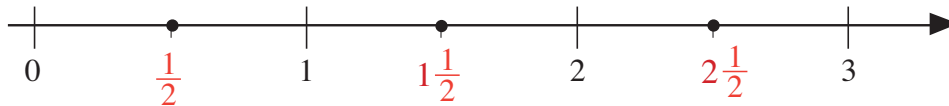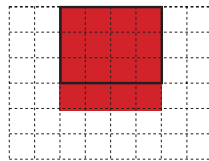
3 Each rectangle is 1 unit. Colour the fraction of the unit shown.
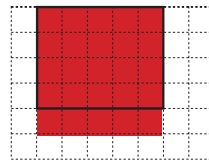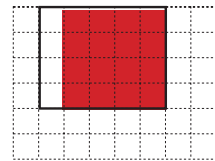
a)   i) $\dfrac{3}{4}$ ii) $\dfrac{4}{3}$ b) i) $\dfrac{5}{4}$ ii) $\dfrac{4}{5}$

a) to c): configuration of shapes coloured may vary; the number of squares coloured must be accurate.

4 Change the quantities. Fill in the missing numbers.

a) $\dfrac{1}{2}$ kg = $\boxed{500}$ g $\dfrac{3}{2}$ kg = $\boxed{1500}$ g $\dfrac{1}{4}$ kg = $\boxed{250}$ g $\dfrac{1}{10}$ kg = $\boxed{100}$ g

$\dfrac{1}{5}$ kg = $\boxed{200}$ g $\dfrac{3}{5}$ kg = $\boxed{600}$ g $\dfrac{1}{100}$ kg = $\boxed{10}$ g $\dfrac{75}{100}$ kg = $\boxed{750}$ g

b) $\dfrac{1}{2}$ km = $\boxed{500}$ m $\dfrac{3}{2}$ km = $\boxed{1500}$ m $\dfrac{3}{5}$ km = $\boxed{600}$ m $\dfrac{1}{10}$ km = $\boxed{100}$ m

$\dfrac{4}{10}$ km = $\boxed{400}$ m $\dfrac{3}{100}$ km = $\boxed{30}$ m $\dfrac{60}{100}$ km = $\boxed{600}$ m $\dfrac{523}{1000}$ km = $\boxed{523}$ m