Addition

You can make adding up big numbers simpler by carrying over digits between the place value columns.

Put the numbers in a column. Make sure the place value columns line up. →

Add up the numbers in each column. →

Remember to carry the left-hand digit to the next column if the answer is more than 9. →

```
  2 1 1 4
+ 4 5 3 7
---------
  6 6 5 1
      1
```

Answer these addition problems. Show your working in the boxes.

3174 + 5343

```
  3 1 7 4
+ 5 3 4 3
---------
  8 5 1 7
      1
```

6741 + 3204

1076 + 1445

1946 + 7114

3813 + 4190

5262 + 3156

4911 + 2157

5319 + 4088

A circus has two shows a day. Use the carrying over method to work out the total number of people who visit the circus each day.

	Monday	Tuesday	Wednesday	Thursday
Show 1	726	817	1395	1557
Show 2	3850	2974	3414	1186

```
   726
+ 3850
------
  4576
   1
```

Subtraction

You can use the exchange method to subtract numbers. For example:

Put the numbers in a column. Make sure the columns line up.

```
        8
  6 8 9 13
- 2 2 5 6
  4 6 3 7
```

If you have to subtract a bigger number from a smaller number, make an exchange from the next place value column.

Subtract the numbers in each column.

Answer these subtraction problems. Show your working.

3470 – 1228
```
  3 4⁶7¹0
- 1 2 2 8
  2 2 4 2
```

5534 – 132

9636 – 642

6428 – 2912

3174 – 241

8829 – 7400

3723 – 2468

4180 – 2490

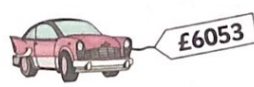Michail has £8347 to buy a car. Work out the amount of money Michail will have left if he buys the following cars.

£4336
```
  8 3 4 7
- 4 3 3 6
  4 0 1 1
```
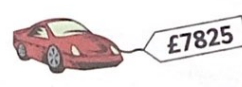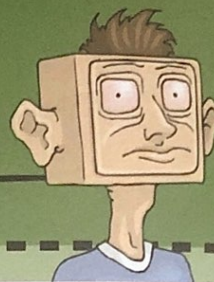£ 4011

£2070
£

£6053
£

£7825
£

Square Numbers

A square number is the product of a number multiplied by itself. Here's an example:

$40^2 =$ **40**   ×   **40**

This symbol shows that a number is being squared.

$= 4 × 10 × 4 × 10$
$= 4 × 4 × 10 × 10$
$= 1600$

Fill in the missing numbers.

$3^2 = 3 × 3 = \boxed{9}$

$\boxed{} = 9 × \boxed{} = 81$

$6^2 = \boxed{} × \boxed{} = \boxed{}$

$8^2 = \boxed{} × \boxed{} = \boxed{}$

$\boxed{} = 4 × \boxed{} = 16$

$11^2 = \boxed{} × \boxed{} = \boxed{}$

$12^2 = \boxed{} × \boxed{} = \boxed{}$

$\boxed{} = \boxed{} × 10 = 100$

$\boxed{} = \boxed{} × 5 = 25$

$7^2 = 7 × 7 = \boxed{}$

Calculate the value of these numbers squared.

$20^2 = 20 × 20$
$= 2 × 10 × 2 × 10$
$= 2 × 2 × 10 × 10$
$= \mathbf{400}$

$70^2 =$

$60^2 =$

$90^2 =$

Prime Numbers

A prime number only has two factors — one and itself. Here are some examples: ➡️

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31

13 can only be made by multiplying 1 and 13 together.

Whole numbers that aren't prime are made up of prime numbers multiplied together. These numbers are called prime factors.
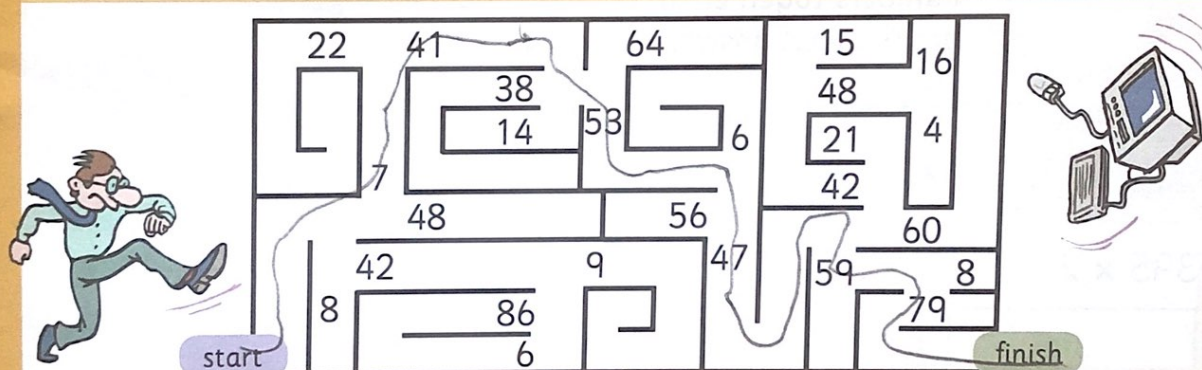
What are the prime factors of 20? 20 = ② × ② × ⑤ These are prime factors of 20 and 42.

What are the prime factors of 42? 42 = ② × ③ × ⑦

Draw a line from the start of the maze to the finish.
You can only pass through prime numbers.

Write the prime factors for the numbers below in the boxes.

18	18 = **3** × 6. **3** is a prime number. 6 = **2** × **3**. **2** and **3** are prime numbers. So 18 = **2 × 3 × 3**.
12	
20	

27	
30	
44	

Division

Using a written method can make it easier to divide a bigger number by a one digit number. For example: **431 ÷ 3 = ?**

Divide each number by **3**. Start with the hundreds...

$$3\overline{)4^13\ 1}$$
$$1$$

If you have a remainder, add it to the next column.

... then divide the tens by **3**...

$$3\overline{)4^13^11}$$
$$1\ 4$$

... then divide the units by **3**.

$$3\overline{)4^13^11}$$
$$1\ 4\ 3\ r\ 2$$

If there is a remainder after you've divided the units, mark it on like this.

Solve the division problems below. Write your answers in the boxes.

124 ÷ 4

$$4\overline{)1\ ^12\ 4}$$
$$0\ 3\ 1$$

31

150 ÷ 2

$$2\overline{)1\ 5\ 0}$$

782 ÷ 6

$$6\overline{)7\ 8\ 2}$$

295 ÷ 5

$$5\overline{)2\ 9\ 5}$$

308 ÷ 8

$$8\overline{)3\ 0\ 8}$$

666 ÷ 9

423 ÷ 5

972 ÷ 6

127 ÷ 4

809 ÷ 7

A minibus carries 9 passengers. Work out how many minibuses will be needed to carry the following number of passengers.

112 passengers

$$9\overline{)1\ ^11\ ^22}$$
$$0\ 1\ 2\ r\ 4$$

13	minibuses

174 passengers

minibuses

213 passengers

minibuses

Perimeters of Shapes

The perimeter is the total distance around the outside of a shape. If you know the lengths of some sides of the shape you can work out the lengths of the others. Here's an example:
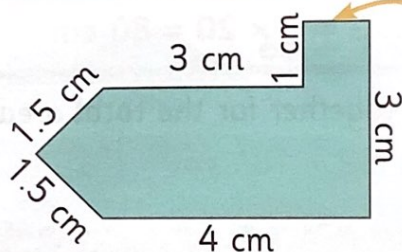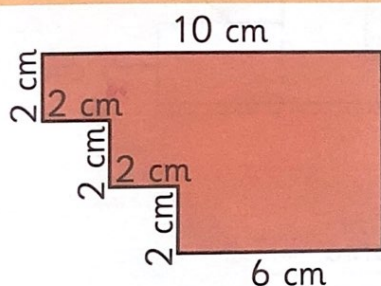
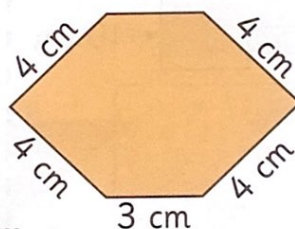You don't know the length of this part. But, the opposite side is 4 cm long. So this part must be 4 cm − 3 cm = 1 cm.

Then add all the sides together:
3 + 4 + 1.5 + 1.5 + 3 + 1 + 1 = **15 cm**
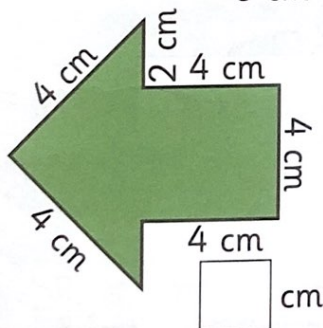
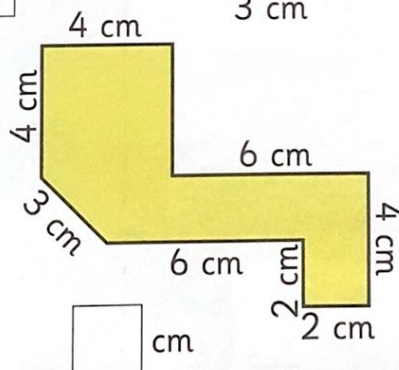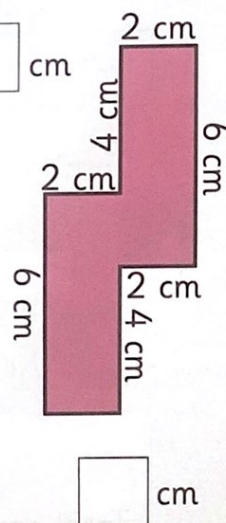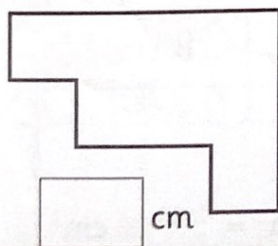Fill in the boxes to show the perimeter of these shapes.

The shapes aren't drawn to scale.

32 cm

Use a ruler to measure the perimeters of these shapes.
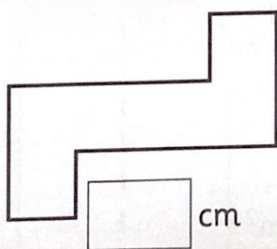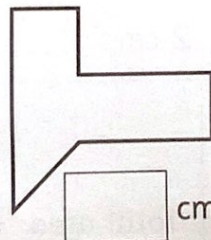
Areas of Shapes

You can split up shapes to help calculate their area. For example:

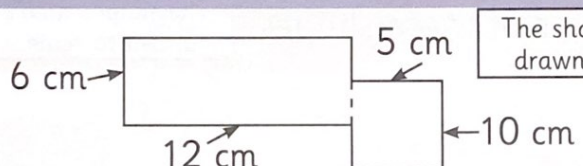Split the shape into two rectangles:

4 cm
6 cm
Rectangle 1
Rectangle 2
4 cm
20 cm
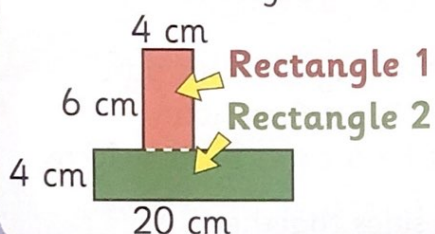
Next, work out the area of each rectangle:

Rectangle 1 = 4 × 6 = 24 cm²
Rectangle 2 = 4 × 20 = 80 cm²

Then add them together for the total area:

24 + 80 = 104 cm²

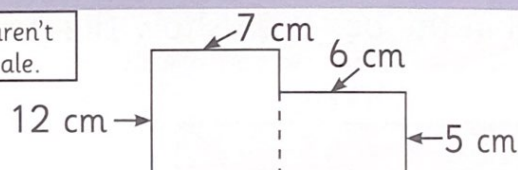
Use the answer boxes to work out the area of these shapes.
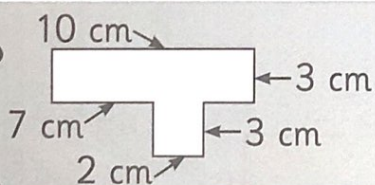
The shapes aren't drawn to scale.

6 cm →
5 cm
12 cm
←10 cm

$6 \times 12 = 72$ cm²
$5 \times 10 = 50$ cm²

Total area = 122 cm²

7 cm
6 cm
12 cm →
←5 cm

Total area =   cm²

10 cm
←3 cm
7 cm
←3 cm
2 cm

Total area =   cm²

12 cm
3 cm→
←7 cm
4 cm →
3 cm
3 cm

Total area =   cm²

5 cm→
4 cm
←5 cm
2 cm
2 cm   3 cm

Total area =   cm²

8 cm
3 cm
←3 cm
6 cm→
2 cm   8 cm
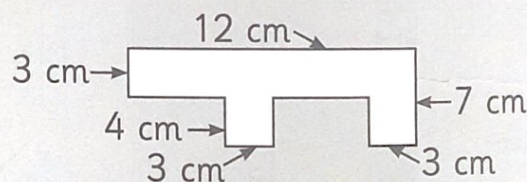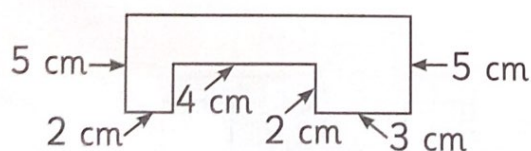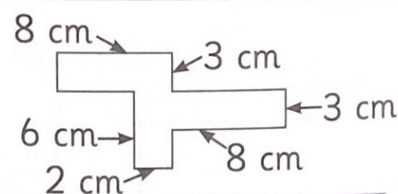
Total area =   cm²

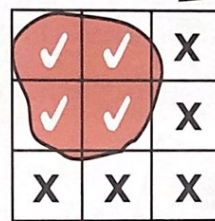You can calculate the area of a right-angled triangle:

The triangle is half the area of the rectangle. So, find the area of the rectangle and then divide by 2.

6 cm

11 cm
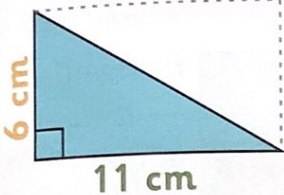
$11 \times 6 = 66$ cm²

$66 \div 2 = 33$ cm²

You can also estimate the area of an irregular shape:

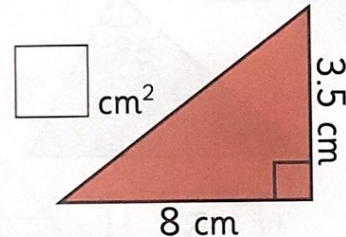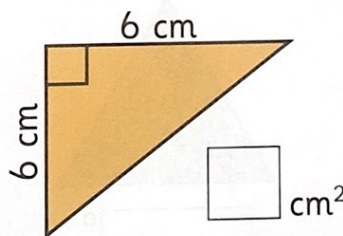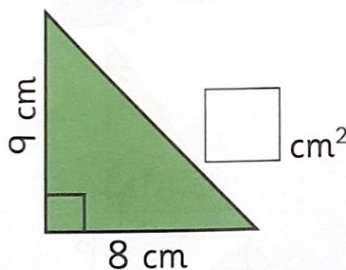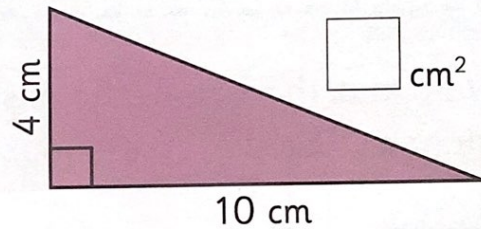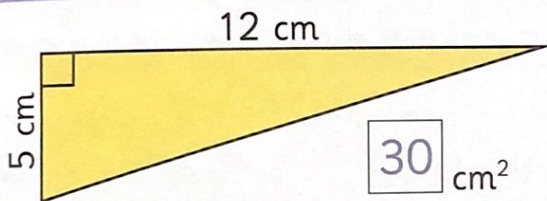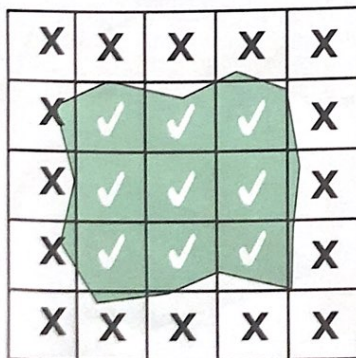| ✓ | ✓ | X |
| ✓ | ✓ | X |
| X | X | X |

Each square is 1 cm². Count each square that is more than half-covered by the shape.

The area of the shape is about **4 cm²**.

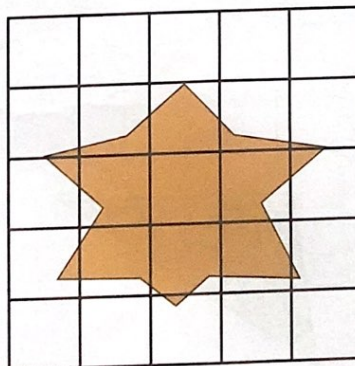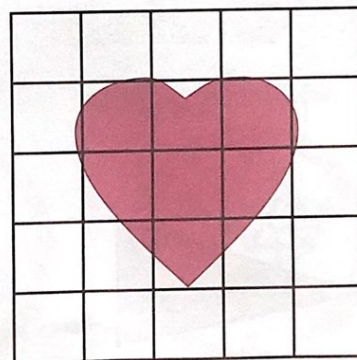Fill in the boxes to show the areas of these right-angled triangles.

12 cm

5 cm

30 cm²

4 cm

10 cm

☐ cm²

9 cm

8 cm

☐ cm²

6 cm

6 cm

☐ cm²

3.5 cm

8 cm

☐ cm²

Estimate the area of each shape. Write your answers in the boxes.

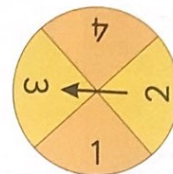| X | X | X | X | X |
X	✓	✓	✓	X
X	✓	✓	✓	X
X	✓	✓	✓	X
X	X	X	X	X

☐ cm²

☐ cm²

☐ cm²

Probability

Probability is the chance of something happening. It can be written as a number or as a fraction. Here's an example:

What is the probability of landing on 3 on this spinner?

1 segment out of 4 is a 3.

So, the probability of landing on 3 is $\frac{1}{4}$ or 0.25.

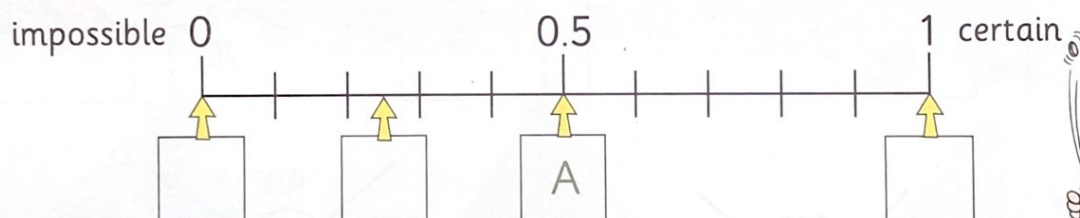Work out the probability of each of these events.
Match the sentences to the right box on the probability scale.

A - You toss a coin and it's tails.   B - You pick a club from a pack of cards.
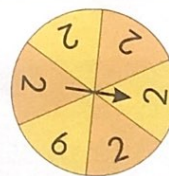
C - Tomorrow will be 24 hours long.   D - You will grow 10 metres tall.

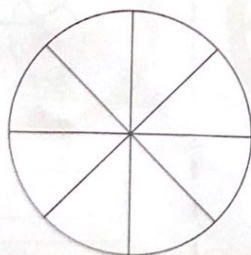impossible 0   0.5   1 certain

A

Work out the probability of landing on 2 on the spinners below.

0

Colour in the spinner below so that the sentences are true.
The spinner is only made up of three colours.

The probability of landing on red is $\frac{1}{2}$.

The probability of landing on blue is greater than the probability of landing on yellow.