

**Essential  
Maths Facts  
for  
Year 6**



## Times Tables

A strong knowledge of your times tables and their related division facts is essential for maths. They should be practised regularly and should be learnt out of order for easy re-call. These can be practised via TT Rockstars.

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

Learning by rote is a popular way for children to recall their times table. The following link is on Youtube and has been popular with our Year 6 children.

[https://www.youtube.com/watch?v=jf2BHuSbt\\_Y](https://www.youtube.com/watch?v=jf2BHuSbt_Y)

Alternatively, type in 'Year 3 Rolling Numbers.'

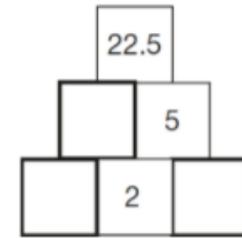


## Example SATs questions

Here is a number pyramid.

The number in a box is the **product** of the two numbers below it.

Write the missing numbers.

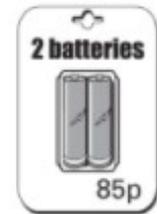


4 This table shows the heights of three mountains.

| Mountain          | Height in metres |
|-------------------|------------------|
| Mount Everest     | 8,848            |
| Mount Kilimanjaro | 5,895            |
| Ben Nevis         | 1,344            |

How much higher is Mount Everest than the **combined height** of the other two mountains?

A shop sells batteries in **packs of four** and **packs of two**.



Simon and Nick want two batteries each. They buy a **pack of four** and share the cost equally.

How much does each pay?

4 This table shows the number of people living in various towns in England.

| Town    | Population |
|---------|------------|
| Bedford | 82,448     |
| Carlton | 48,493     |
| Dover   | 34,087     |
| Formby  | 24,478     |
| Telford | 166,640    |

What is the **total** of the numbers of people living in Formby and in Telford?

What is the **difference** between the numbers of people living in Bedford and in Dover?

## 4 Operations Key Language

+

Sum  
Find the sum of  
Plus  
Total  
Find the total of  
Add  
More than  
Make  
Addition  
Altogether  
Together  
And  
More than  
Total  
Cobined

-

Less  
Less than  
Leave  
Difference  
Find the difference  
What is the difference between  
Minus  
Subtract  
Take away  
Take from  
Fewer  
Left  
How much more

x

Multiply  
product  
Groups of  
Lots of  
Multiplication  
Multiplied by  
Times  
Multiple of  
Repeated addition

÷

Divide  
Divided by  
Divided into  
Divided equally  
Share equally  
Share  
Equal groups of

=

Equal to  
Equals  
The same as

## Example SATs questions

Write the missing numbers to make this **multiplication** grid correct.

|                      |                      |                      |
|----------------------|----------------------|----------------------|
| x                    | <input type="text"/> | <input type="text"/> |
| 9                    | 63                   | 54                   |
| <input type="text"/> | 56                   | 48                   |

The number 20 goes in **two** of the squares of this multiplication grid.

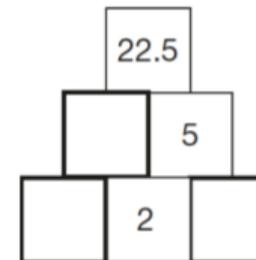
Tick (✓) the two squares where 20 goes.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| x | 1 | 2 | 3 | 4 | 5 |
| 1 |   |   |   |   |   |
| 2 |   |   |   |   |   |
| 3 |   |   |   |   |   |
| 4 |   |   |   |   |   |
| 5 |   |   |   |   |   |

Here is a number pyramid.

The number in a box is the **product** of the two numbers below it.

Write the missing numbers.



$$167 \times 4 =$$

$$0.9 \times 200 =$$

Explain how you can use this fact to find the answer to  $18 \times 326$

$$5,542 \div 17 = 326$$

A group of friends earns £80 by washing cars.

They share the money **equally**.

They get £16 each.

$$581 \div 7 =$$

How many friends are in the group?

## Time

### Simple Facts

- 60 seconds in a minute
- 60 minutes in an hour
- 24 hours in a day (12 hours in half a day)
- 7 days a weeks
- 52 weeks in a year
- 4 weeks in a month (roughly)
- 365 days in a year
- 366 days in a leap year (once every four years)
- In a leap year February has one additional day.

30 days hath September,  
April, June and November  
All the rest have 31,  
Except for February alone,  
Which has 28 days clear,  
And 29 in each leap year.

12 Midnight = 00.00  
1 am = 01.00  
2am = 02.00  
3am = -3.00  
4am = 04.00  
5am = 05.00  
6am = 06.00  
7am = 07.00  
8am = 08.00  
9am = 09.00  
10am = 10.00  
11am = 11.00

### Months of the Year (in order)

January  
February  
March  
April  
May  
June  
July  
August  
September  
October  
November  
December

**Purchasing analogue watch for your child can be extremely helpful for them to learn the time. Often, children can read digital time but cannot convert this knowledge when looking at an analogue clock in their everyday life.**

12 Noon / midday = 12.00  
1pm = 13.00  
2pm = 14.00  
3pm = 15.00  
4pm = 16.00  
5pm = 17.00  
6pm = 18.00  
7pm = 19.00  
8pm = 20.00  
9pm = 21.00  
10pm = 22.00  
11pm = 23.00

## Example SATs questions

Write three factors of 30 that are **not** factors of 15

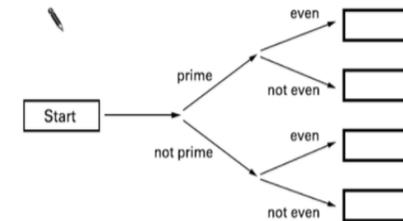
Write all the common multiples of 3 and 6 that are **less than 50**

Here is a diagram for sorting numbers.

Write these three numbers in the correct boxes.

You may not need to use all of the boxes.

9 17 20



Write all the numbers between 50 and 100 that are **factors of 180**

1

Here is a diagram for sorting numbers.

Write **one number** in each box

One is done for you.

|                     | multiple of 5 | not a multiple of 5 |
|---------------------|---------------|---------------------|
| multiple of 3       | 30            |                     |
| not a multiple of 3 |               |                     |

## Factors and Multiples

**Factors** are all the numbers which, when multiplied together in pairs, produce the original number. i.e.

The factors of 12 are:

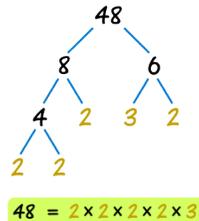
- 1 and 12 ( $1 \times 12 = 12$ )
- 2 and 6 ( $2 \times 6 = 12$ )
- 3 and 4 ( $3 \times 4 = 12$ )

Numbers which have only one pair of factors (1 and itself) are known as prime numbers: 17 is prime number because the only pair of factors are 1 and 17.

Common factors—these are numbers which are factors for two different numbers i.e. the common factors of 12 and 20 are 1, 2 and 4 because these numbers divide exactly into both original numbers. This is important when working with fractions.

Prime factors are the factors of a given number which, when taken to its full extent, are prime. They can be shown as a prime factor tree and, when all of them are multiplied together, they will produce the original number.

**Tip:**  
**Factors are always the number or smaller**  
**Multiples are always the number or bigger.**



### Multiples

Multiples are effectively extended times tables. The multiples of any number are the numbers into which the original number can be divided exactly. For example:

The multiples of 2 are 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30 and any other number which can be divided by 2.

The multiples of 5 are 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80 and any other number which can be divided by 5.

Common multiples are the multiples which apply to two different numbers. I.E. the common multiples for 3 and 4 below 30 are:

12 and 24 as these are multiples for both 3 and 4.

## Example SATs time questions:

**7** Write the missing numbers.

60 months =  years

72 hours =  days

84 days =  weeks

Complete each sentence using a number from the list below.

120      240      600

1,440      3,600      6,000

There are  seconds in an hour.

There are  minutes in a day.

**9**

Here is part of the bus timetable from Riverdale to Mott Haven.

|             |       |       |       |       |
|-------------|-------|-------|-------|-------|
| Riverdale   | 10:02 | 10:12 | 10:31 | 10:48 |
| Kingsbridge | 10:11 | 10:21 | 10:38 | 10:55 |
| Fordham     | 10:28 | 10:38 | 10:54 | 11:11 |
| Tremont     | 10:36 | 10:44 | 11:00 | 11:17 |
| Mott Haven  | 10:53 | 11:01 | 11:17 | 11:34 |

How many minutes does it take the 10:31 bus from Riverdale to reach Mott Haven?

minutes

Mr Evans is at Fordham at 10:30

What is the **earliest** time he can reach Tremont on the bus?

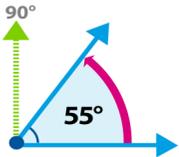
What is 444 minutes in hours and minutes?

hours       minutes

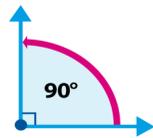
## Angles

- The angles on a straight line add up to  $180^\circ$
- The angles around a point add up to  $360^\circ$
- Internal angles of a triangle add up to  $180^\circ$
- The angles of a quadrilateral add up to  $360^\circ$
- Other 2d shapes—for every additional angle add a further  $180^\circ$   
(Pentagon, 5 angles =  $360^\circ + 180^\circ = 540^\circ$ , hexagon, 6 angles =  $540^\circ + 180^\circ = 720^\circ$ , and so on)  
The formula  $(n-2) \times 180$  can be used to calculate the interior angles of any regular shape ( $n$  = the number of sides on the shape)

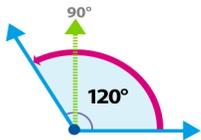
Acute angle = less than  $90^\circ$



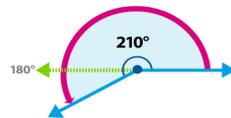
Right angle =  $90^\circ$



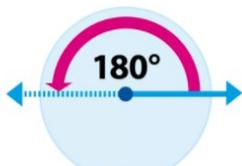
Obtuse angle = greater than  $90^\circ$  but less than  $180^\circ$



Reflex angle = greater than  $180^\circ$



Half turn or angle on a straight line



Half turn

Full turn

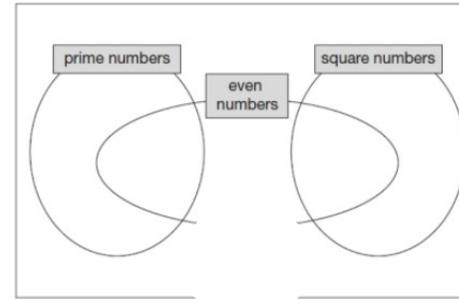


Full turn

## Examples of SATs questions

Write each number in its correct place on the diagram.

16      17      18      19



**18** A **square** number and a **prime** number have a total of 22

What are the two numbers?

$$\boxed{\text{square number}} + \boxed{\text{prime number}} = 22$$

Find two **square** numbers that total 45

$$\boxed{\phantom{00}} + \boxed{\phantom{00}} = 45$$

Here is a sorting diagram for numbers.

Write a number **less than 100** in each space.

|                     | even | not even |
|---------------------|------|----------|
| a square number     |      |          |
| not a square number |      |          |

## Squares, Cubes and Primes

Square numbers are the result when a root number is multiplied by itself i.e. 5 squared ( $5^2$ ) is  $5 \times 5 = 25$ . 25 is a square number.

Cube numbers are the result of a root number being multiplied by itself and the answer being multiplied by the root number again i.e. 5 cubed ( $5^3$ ) is  $5 \times 5 \times 5 = 125$

| Root number | Squared | Cubed |
|-------------|---------|-------|
| 1           | 1       | 1     |
| 2           | 4       | 8     |
| 3           | 9       | 27    |
| 4           | 16      | 64    |
| 5           | 25      | 125   |
| 6           | 36      | 216   |
| 7           | 49      | 343   |
| 8           | 64      | 512   |
| 9           | 81      | 729   |
| 10          | 100     | 1000  |
| 11          | 121     | 1331  |
| 12          | 144     | 1728  |

Prime numbers are those numbers which only have 1 and itself as factors.

2 is the only even prime number.

1 is not a prime number.

Prime Numbers are infinite but the primes below 100 are:

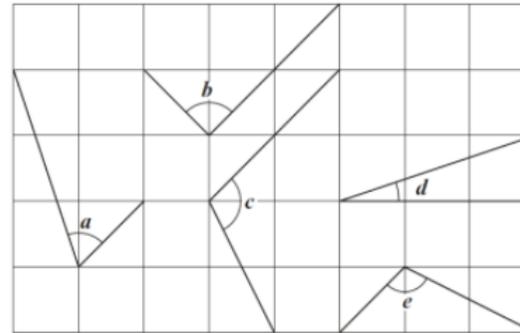
2, 3, 5, 7,  
11, 13, 17,  
23,  
31, 37,  
41, 43, 47,  
53, 59,  
61, 67,  
71, 73, 79,  
83, 89,  
97

## Example SATs angles questions:

13 Circle the pentagon with exactly four acute angles.



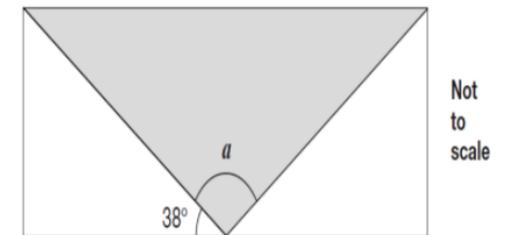
7 Here are five angles marked on a grid of squares.



Write the letters of the angles that are **obtuse**.

Write the letters of the angles that are **acute**.

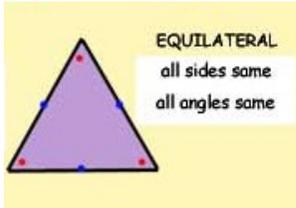
15 A shaded **isosceles** triangle is drawn inside a rectangle.



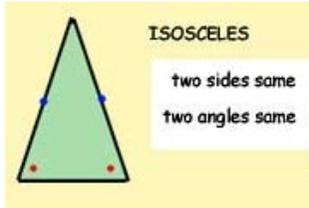
Calculate the size of angle **a**.

## 2d Shape

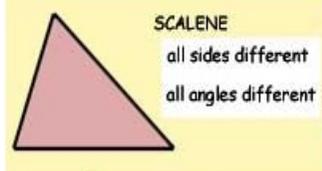
**Equilateral Triangle**  
All sides and internal angles are equal



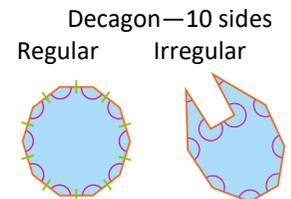
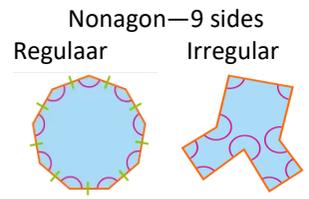
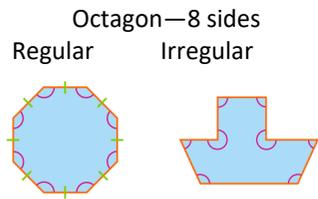
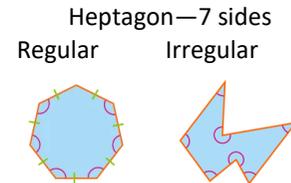
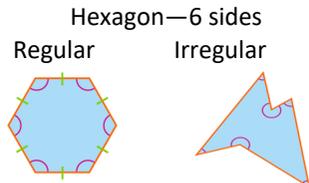
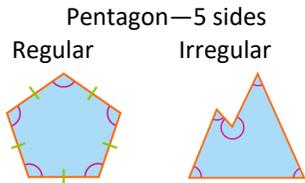
**Isosceles Triangle**  
2 equal length sides and 2 equal angles



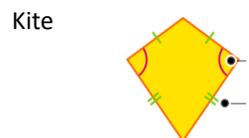
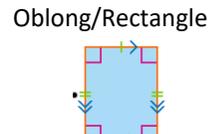
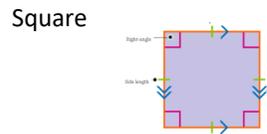
**Scalene Triangle**  
All 3 sides are different lengths, all angles are different.



**Regular shapes** - shapes which have equal length sides and equal angles  
**Irregular Shapes**—shapes which have unequal length sides and unequal angles.



**Quadrilaterals—4 sided shapes with straight lines**



## Example SATs questions

Complete this table to show the numbers to the nearest 100

|        | rounded to the nearest hundred |
|--------|--------------------------------|
| 316    | 300                            |
| 3162   |                                |
| 31628  |                                |
| 316281 |                                |

Amy chooses two of these cards.



She adds the numbers on her two cards together.  
She rounds the result to the nearest 10

Her answer is 60

Which two cards did Amy choose?



Write in the missing numbers.

| Number | Rounded to the nearest whole number |
|--------|-------------------------------------|
| 5.05   |                                     |
| 5.55   |                                     |
| 4.45   |                                     |
| 4.54   |                                     |

## Rounding

Rounding is a skill which can be extremely useful when estimating answers to complex calculations but it is also a skill tested within SATs papers.

|    |   |   |   |   |     |
|----|---|---|---|---|-----|
| TH | H | T | U | . | ths |
| 2  | 4 | 6 | 5 | . | 9   |

To round to the nearest ten first we must look at the tens column. We have 6 tens so we know the number will either round up to 2470 or down to 2460. Next we must look in the units column. If it is 5 or more then we round up, if it is 4 or less we round down. As 5 is in the units, we round up to 2470.

This procedure follows for rounding to nearest thousand, hundred, unit, or tenth. The only thing that alters is the column we look in so:

2465.9 rounded is:

2000—to the nearest thousand  
 2500—to the nearest hundred  
 2470—to the nearest ten  
 2455—to the nearest unit

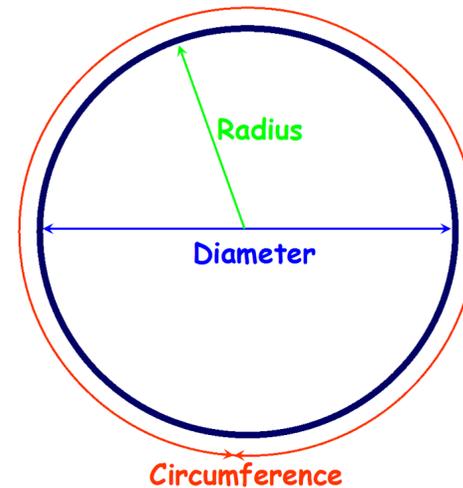
Rounding to the nearest tenth/hundredth.

Example:

3.4**5**6 rounded to 2 decimal places/nearest hundredth = 3.46

3.4**5**6 round to 1 decimal place/nearest tenth = 3.5

## Circle



Circumference—the distance around the outside of the circle (it's perimeter).

Diameter—the width of the circle crossing the centre from one side to the other.

Radius—the distance from the centre of the circle to

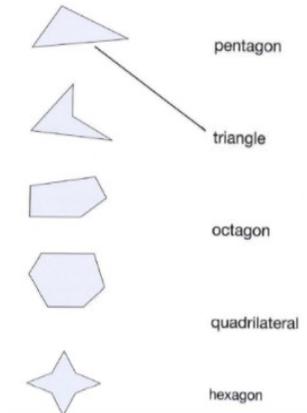
## Example SATs questions

13

Circle the pentagon with exactly four acute angles.

Match each shape to the correct name.

One has been done for you.



Each of these four squares has been cut into two new shapes.



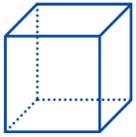
Write the letters of all the new shapes that are hexagons.

A bicycle wheel has a diameter of 64 cm.

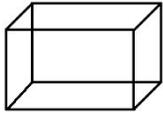
What is the radius of the bicycle wheel?

## 3d Shape

Cube



Cuboid



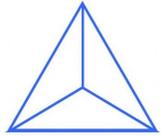
Cylinder



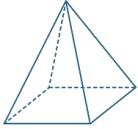
Cone



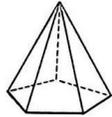
Triangular Based Pyramid



Square based pyramid



pyr- Pentagonal based pyramid



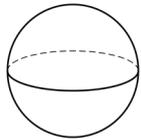
Triangular Prism



Hexagonal prism



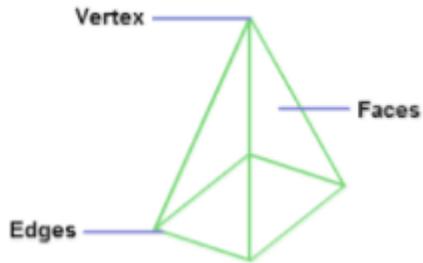
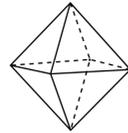
Sphere



Hemisphere



Octahedron



Vertex—the 'corners' of the shape.

Face—the side of the shape

Edge—the joint of two faces

## Example SATs questions

Write the missing number to make this division correct.

$$75 \div \boxed{\phantom{000}} = 7.5$$

Complete these calculations.

$$15 \times 100 = \boxed{\phantom{000}}$$

$$\boxed{\phantom{000}} \times 10 = 1500$$

$$\boxed{\phantom{000}} \div 100 = 150$$

$$150 \div 10 = \boxed{7.5}$$

Here are five number cards.

0.47    10    100    1000    4.07

Use four of the cards to complete these calculations.

$$47 \div \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} \times \boxed{\phantom{00}} = 40.7$$

$$2,345 \times 1,000 =$$

## Place Value and multiplying/dividing by 10, 100 and 1000

| TM               | M        | HTH                  | TTH               | TH        | H       | T    | U           | .                        | ths    | hths            | thths            |
|------------------|----------|----------------------|-------------------|-----------|---------|------|-------------|--------------------------|--------|-----------------|------------------|
| Tens of Millions | Millions | Hundred of Thousands | Tens of Thousands | Thousands | Hundred | Tens | Units/ Ones | Decima<br>l<br>Poi<br>nt | Tenths | Hun-<br>dredths | thou-<br>sandths |
| 4                | 2        | 7                    | 5                 | 6         | 4       | 6    | 2           | .                        | 5      | 4               | 3                |

Forty-Two million, seven hundred and fifty-six thousand four hundred and sixty-two point five four three

Multiplying by 10, 100 and 1000—count the zeroes then move the digits the same number of places to the left. The decimal point DOES NOT MOVE it is a fixed point. Gaps are plugged with a zero (you do not ADD a zero—ever!).

|       |  |   |   |   |   |   |   |   |   |  |  |
|-------|--|---|---|---|---|---|---|---|---|--|--|
|       |  |   |   |   | 4 | 5 | 3 | . | 6 |  |  |
| X10   |  |   |   | 4 | 5 | 3 | 6 |   |   |  |  |
| X100  |  |   | 4 | 5 | 3 | 6 | 0 |   |   |  |  |
| x1000 |  | 4 | 5 | 3 | 6 | 0 | 0 |   |   |  |  |

Dividing by 10, 100 and 1000—count the zeroes the move the digits the same number of places to the right. The decimal point DOES NOT MOVE it is a fixed point. Gaps are plugged with a zero.

|       |  |  |  |  |   |   |   |   |   |   |   |
|-------|--|--|--|--|---|---|---|---|---|---|---|
|       |  |  |  |  | 4 | 5 | 3 |   |   |   |   |
| ÷10   |  |  |  |  |   | 4 | 5 | . | 3 |   |   |
| ÷100  |  |  |  |  |   |   | 4 | . | 5 | 3 |   |
| ÷1000 |  |  |  |  |   |   | 0 | . | 4 | 5 | 3 |

These facts can then be used to help with other calculations i.e.  $50 \times 70$

$$5 \times 7 = 35$$

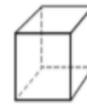
$$50 \times 7 = 350$$

$$50 \times 70 = 3500$$

## Example SATs questions

Here are diagrams of some 3-D shapes.

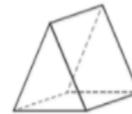
Tick each shape that has the same number of faces as vertices.



Cube



Square-based pyramid

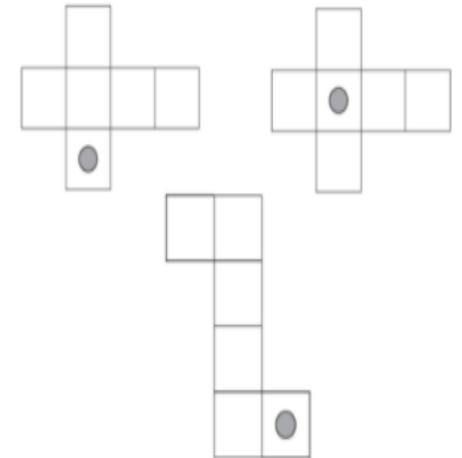


Triangular prism



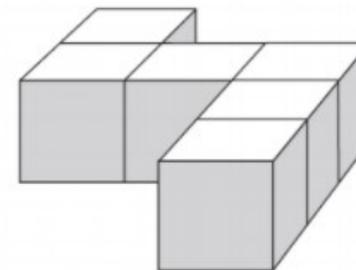
Triangular-based pyramid

On each net draw **one more dot** so that each cube will have dots on **opposite faces**.



Emily has 6 cubes.

She sticks them together to make this model.



She paints the sides of the model grey all the way round.

She leaves the top and the bottom of the model white.

How many of the cubes in the model have **exactly two** faces painted grey?

## Fractions, Decimals and Percentages

Fractions, decimals and percentages can be easily converted through the methods we have taught you at school but some of them need to be remembered to help with speed during tests. This is especially helpful when ordering a mixture of fractions, decimals and percentages.

| Fraction | Decimal | Percentage |
|----------|---------|------------|
| 1/2      | 0.5     | 50%        |
| 1/4      | 0.25    | 25%        |
| 3/4      | 0.75    | 75%        |
| 1/10     | 0.1     | 10%        |
| 1/5      | 0.2     | 20%        |
| 3/10     | 0.3     | 30%        |
| 2/5      | 0.4     | 40%        |
| 3/5      | 0.6     | 60%        |
| 7/10     | 0.7     | 70%        |
| 4/5      | 0.8     | 80%        |
| 9/10     | 0.9     | 90%        |
| 1/100    | 0.01    | 1%         |
| 2/100    | 0.02    | 2%         |
| 3/100    | 0.03    | 3%         |
| 4/100    | 0.04    | 4%         |
| 5/100    | 0.05    | 5%         |

## Example SATs questions

$$3^2 + 10 =$$

$$50 + (36 \div 6) =$$

$$20 - 4 \times 2 =$$

Write one number from each circle to make this calculation correct.

Write the correct sign >, < or = in each of the following.

$(10 + 5) - 9$    $(10 + 9) - 5$

$3 \times (4 + 5)$    $(3 \times 4) + 5$

$(10 \times 4) \div 2$    $10 \times (4 \div 2)$

## BODMAS

BODMAS is the order in which operations within a calculation must be completed.

B = Brackets

O/I= Orders (also known as powers)/ Indices

D = Division

M = Multiplication

A = Addition

S = Subtraction

$$7^2 \times 2 - (6 + 3) =$$

Brackets first—  $6 + 3 = 9$

Orders/indices second—  $7^2 = 49$

Division/Multiplication next—  $49 \times 2 = 98$

Addition/Subtraction last—  $98 - 9 = 89$

You might not see all the BODMAS steps in one questions so you just need to figure which step must come first, for example:

$$60 - 42 \div 6 =$$

If completed in left to right order the answer would be 3—this is **INCORRECT!**

Under BODMAS  $42 \div 6$  must be completed first ( $42 \div 6 = 7$ ) then this answer taken away from 60 so the **CORRECT** answer is 53.

## Example SATs questions

Write these in order of size, starting with the smallest.

$\frac{3}{4}$     0.34    0.7    43%



smallest

17

In each box, circle the number that is **greater**.

$1\frac{1}{2}$     1.2      $1\frac{5}{100}$     1.4

$1\frac{1}{4}$     1.3      $1\frac{3}{5}$     1.5

Put a tick (✓) in **each row** to complete this table.

One has been done for you.

|                 | greater than $\frac{1}{2}$ | less than $\frac{1}{2}$ |
|-----------------|----------------------------|-------------------------|
| 0.9             | ✓                          |                         |
| 0.06            |                            |                         |
| $\frac{11}{20}$ |                            |                         |
| 0.21            |                            |                         |

20

Adam says,

0.25 is **smaller** than  $\frac{2}{5}$

Explain why he is correct.

When **simplifying fractions**, find a common factor for the numerator and denominator then (to simplify as far as possible) use:

“Whatever I do to the bottom, I must do to the top” .

When **converting an improper fraction to mixed number** divide the denominator into the numerator. The whole number will give you the ‘whole’ part of the mixed number, any remainders should be put over the original denominator as a fraction (and then simplified if needed).

**Adding or subtracting fractions**—the denominators **MUST** be the same. Convert using common multiples and “Whatever I do to the bottom, I must do to the top” .

**Dividing fractions**—remember ‘Keep, change, flip’ - KCF

**Multiplying fractions by whole numbers**— put a fraction line and 1 underneath the whole number and complete the calculation—multiply the numerators then multiply the denominators

**When ordering fractions**—convert all so they have the same denominator to make it easy to put them in order but remember to write the original fraction in the answer boxes.

Write the letter of the shape that has the **smallest area**.

Here are some shapes on a 1 cm square grid.

What is the **perimeter** of shape A?



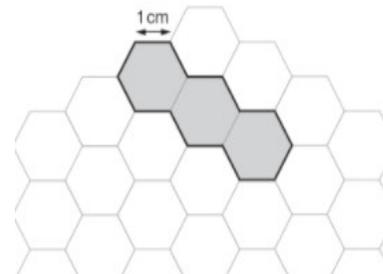
The perimeter of this rectangle is 50 centimetres.

Calculate the length of the rectangle.

Here is a grid of regular hexagons.

The shaded shape has an area of 3 hexagons and a perimeter of 14 cm.

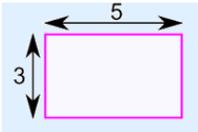
Draw another shape on the grid which has an **area** of 4 hexagons and a **perimeter** of 14 cm.



## Area, Perimeter and Volume

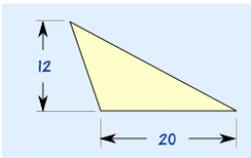
Area:

Area is the amount of space covered by a 2d shape. Area of a rectilinear shape (square, oblong) is calculated by the formula length x width. The area of a compound shape can be calculated by splitting the shape into its constituent parts, calculating their area and then adding them back together.



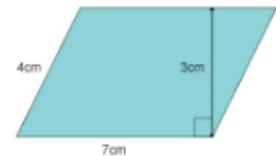
Assuming these are in cm  $3\text{cm} \times 5\text{cm} = 15\text{cm}^2$

Area of a triangle is calculated by the formula  $(\text{base} \times \text{height}) \div 2$



$(12\text{cm} \times 20\text{cm}) \div 2 = 120\text{cm}^2$

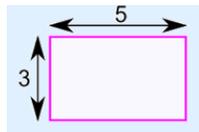
Area of a parallelogram is calculated by the formula base x height.



$3\text{cm} \times 7\text{cm} = 21\text{cm}^2$

Perimeter is the total outside length of sides of a shape added together

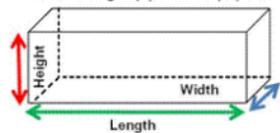
So the perimeter for this shape would be 16cm as the two longer sides are 5cm and the two shorter sides are 3cm.



Volume is the internal space of a 3d object (i.e. how much it could contain). It is calculated by the formula length x width x height.

So if  $h = 3\text{cm}$ , width = 2cm and  $l = 6\text{cm}$  the volume would be:

Volume = Length (L) x Width (W) x Height (H)



$3 \times 2 \times 6 = 36\text{cm}^3$

## Example SATs questions

Circle the fraction that is greater than  $\frac{1}{2}$  but less than  $\frac{3}{4}$

  $\frac{7}{8}$     $\frac{2}{5}$     $\frac{1}{3}$     $\frac{5}{8}$     $\frac{3}{6}$

$$\frac{4}{6} \times \frac{3}{5} =$$

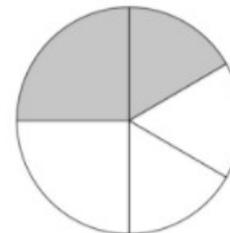
$$\frac{5}{8} \div 2 =$$

Two of the fractions below are **equivalent**.

Circle them.

  $\frac{2}{3}$     $\frac{6}{10}$     $\frac{9}{12}$     $\frac{10}{15}$     $\frac{16}{20}$

23 In this circle,  $\frac{1}{4}$  and  $\frac{1}{6}$  are shaded.



Write these fractions in order of size starting with the smallest.

$\frac{3}{4}$     $\frac{3}{5}$     $\frac{9}{10}$     $\frac{17}{20}$

      
smallest

What fraction of the whole circle is **not** shaded?

## Units of Measurement

### Metric

#### Length/Distance

1km = 1000m

1m = 100cm

1cm = 10mm

1m = 1000mm

1/2 km=500m

1/2 m = 50cm

1/2/cm = 5mm

3/4 km = 750m

3/4 m = 75cm

3/4 cm = 7.5mm

1/4/km = 250m

1/4 m = 25cm

1/4 cm = 2.5mm

#### Weight/Mass

1 tonne = 1000kg

1kg = 1000g

1/2 tonne = 500kg

1/2kg = 500g

3/4 kg = 750g

1/4 kg = 250g

#### Volume

1L = 1000ml

1L = 100cl

1cl = 10ml

1/2L = 500ml

3/4L = 750ml

1/4 L = 250ml

### Imperial

1 mile = 1760 yards

1 yard = 3 feet

1 foot = 12 inches

1 stone = 14 pounds (lb)

1 lb = 16 ounces (oz)

1 gallon = 8 pints

### Metric/Imperial conversion (rough)

2.5cm = 1 inch

8km = 5 miles

500g = 1lb

## Example SATs questions

At the end of a film, the year is given in Roman numerals.



Write the year MMVI in figures.

Here is a number written in Roman numerals.

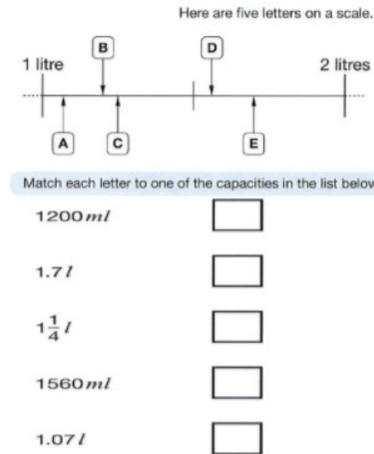
CXV

Write the number in figures.

## Roman Numerals

| Arabic Numeral | Roman Numeral |
|----------------|---------------|
| 1              | I             |
| 2              | II            |
| 3              | III           |
| 4              | IV            |
| 5              | V             |
| 6              | VI            |
| 7              | VII           |
| 8              | VIII          |
| 9              | IX            |
| 10             | X             |
| 20             | XX            |
| 30             | XXX           |
| 40             | XL            |
| 50             | L             |
| 60             | LX            |
| 70             | LXX           |
| 80             | LXXX          |
| 90             | XC            |
| 100            | C             |
| 500            | D             |
| 1000           | M             |

## Example SATs questions



A bottle contains 568 millilitres of milk.

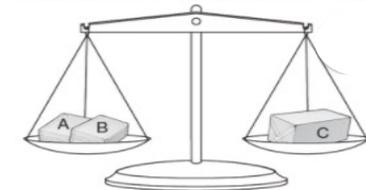
Jack pours out **half a litre**.

How much milk is left?



Amir has three parcels.

Parcels A and B together weigh the same as parcel C.



The three parcels weigh 800 grams altogether.

Parcel A weighs 250g.

How much does parcel B weigh?