KS2 Maths SKILLS Organiser presents GENIUS MATHS

# ALGEBRA & UNKNOWNS

## 23

Here is a pattern of number pairs.

| $a$ | $b$ |
|-----|-----|
| 1 | 9 |
| 2 | 19 |
| 3 | 29 |
| 4 | 39 |

Complete the **rule** for the number pattern.

$$b = \boxed{\phantom{00}} \times a - \boxed{\phantom{00}}$$

## 4

Each shape stands for a number.



←Total 100

Total 96

Work out the **value** of each shape.

△ = _____

○ = _____

**LAST YEARS questions**

## 13

Lara chooses a number less than 20

She divides it by 2 and then adds 6
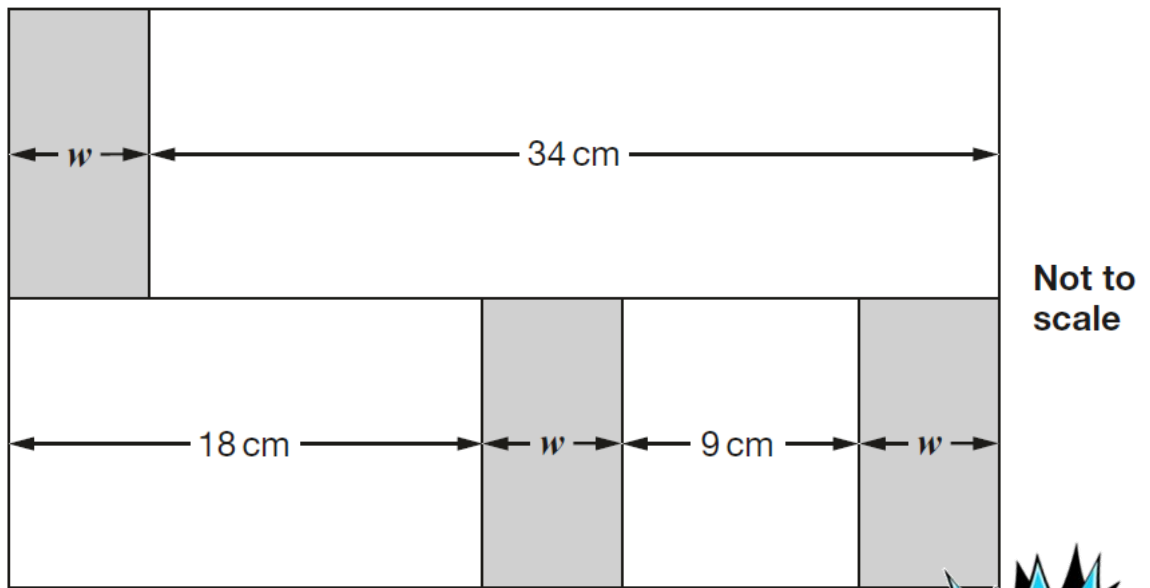
She then divides this result by 3

Her answer is 4.5

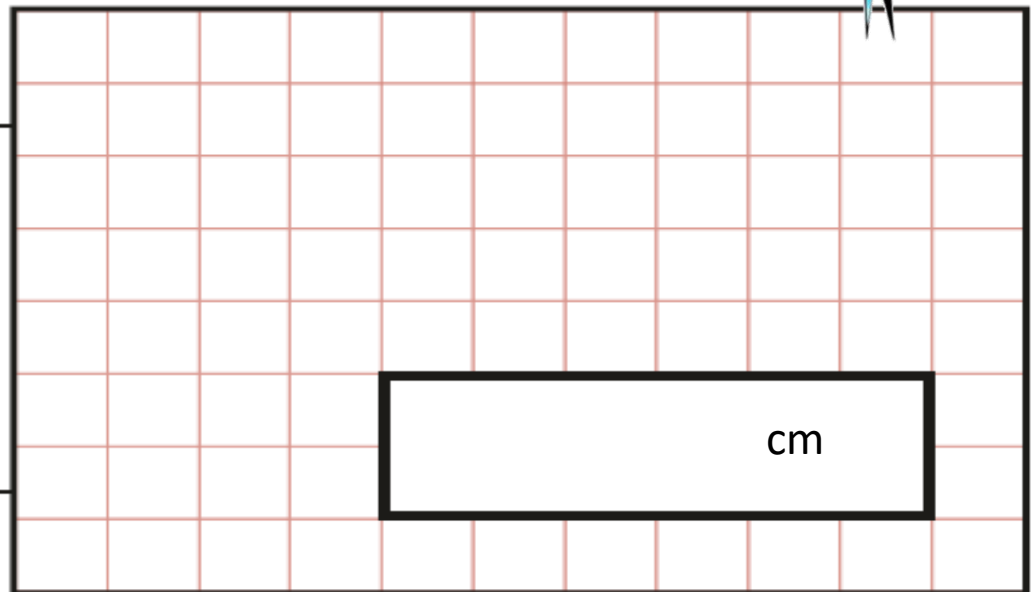What was the number she started with?

Show your method

**22** In this diagram, the shaded rectangles are all of equal width (*w*).



Not to scale

Calculate the width (*w*) of one shaded rectangle.

Show your method

cm

**8** Maria bakes cakes and sells them in bags.

She uses this formula to work out
how much to charge for one bag of cakes.

> **Cost = number of cakes × 20p + 15p for the bag**
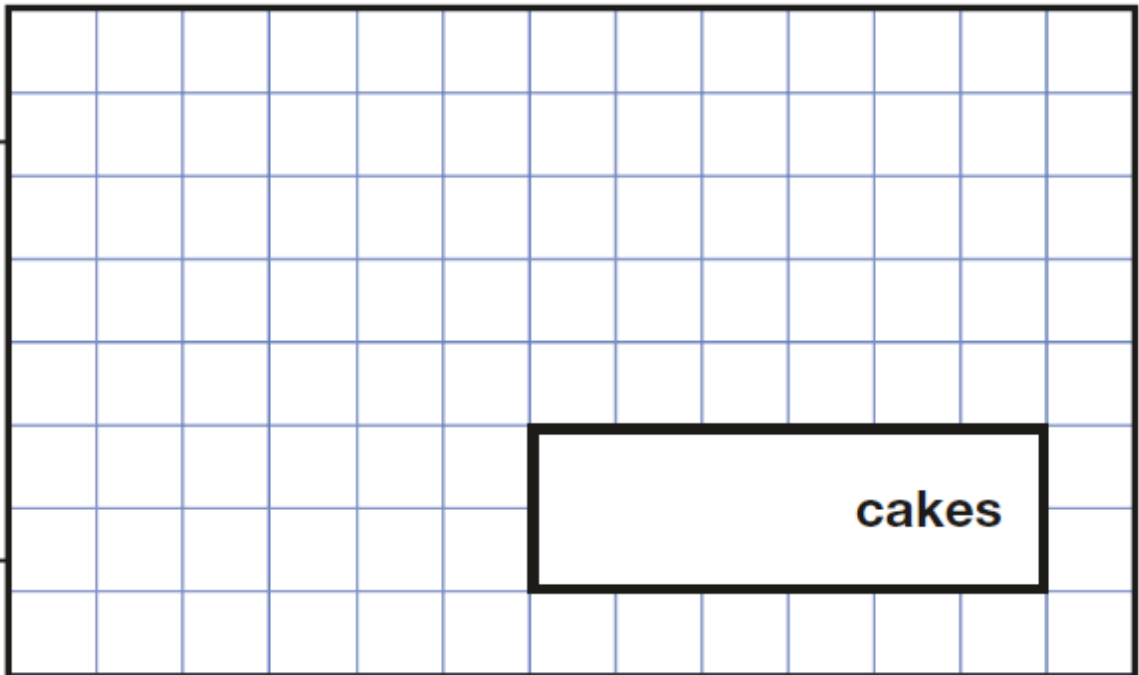
How much will a bag of 12 cakes cost?

£

Olivia buys a bag of cakes for £5.15

Use the formula to calculate how many cakes are in the bag.

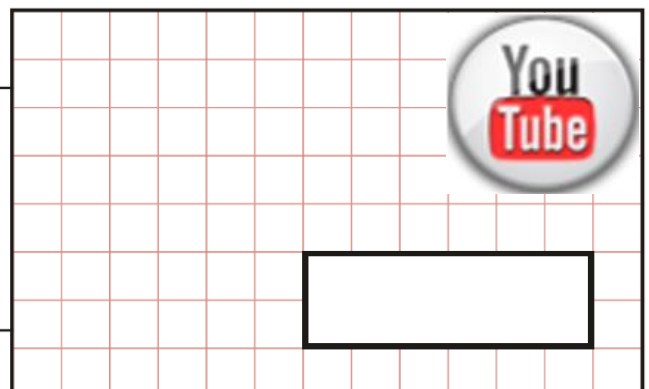Show your method

cakes

**16**

Lara chooses a number less than 100

She divides it by 3 and then subtracts 11

She then divides this result by 2

Her answer is 10.5

Show your method

What was the number she started with?

## 2013A KS2 Q15

Four children are in a race.

Chen is 2 metres ahead of Alfie.

Nina is 5 metres behind Megan.

Alfie is 3 metres behind Megan.

Write the names of the runners in order, starting with the child who is furthest ahead.

_____   _____   _____   _____
furthest
ahead

## 2013A KS2 Q24

A cake costs 15p more than a biscuit.

Megan bought a cake and two biscuits for 90p.

How much do a cake and a biscuit each cost?

Show your working

Cost of a cake [    ] p    Cost of a biscuit [    ] p

## 2012A KS2 Q21

Mina has **5 more** marbles than Kirsty.

Kirsty has **2 more** marbles than Seb.

Altogether they have **30** marbles.

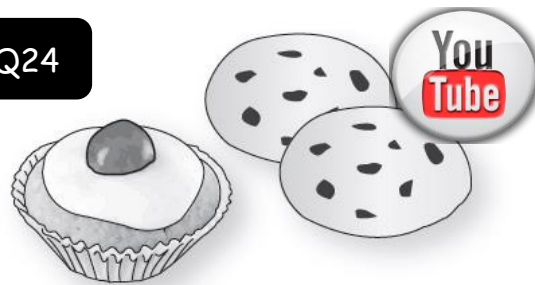How many marbles does each child have?

Show your working

Mina [    ]    Kirsty [    ]    Seb [    ]

## 2010A KS2 Q15

An iced cake costs 10p more than a plain cake.

Sarah bought two of each cake.

They cost £1 altogether.

What is the cost of an **iced** cake?

Show your **working**.
You may get a mark.

[    ] p

$k$ stands for a whole number.

$k + 7$ is greater than 100

$k - 7$ is less than 90

Find **all** the numbers that $k$ could be.

Liam thinks of a number.

He **multiplies the number by 5** and then **subtracts 60** from the result.

His answer equals the number he started with

What was the number Liam started with?

Show your **working.** You may get a mark.

Leon and Sara each started with **different** numbers.

I **added 5** to my number.

I **subtracted 8** from my number.

Leon

Sara

Leon and Sara both get the **same** answer.

What numbers could they have started with?

Leon ☐    Sara ☐

**12**    $n = 22$

What is $2n + 9$?

$2q + 4 = 100$

Work out the value of $q$.

$q =$ ☐