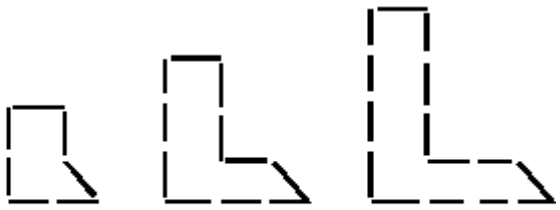
Q1. Ann makes a pattern of **L** shapes with sticks.



Shape–number:	**1**	**2**	**3**
Number of sticks:	7	11	15

Ann says : ***"I find the number of sticks for a shape by first multiplying the shape-number by 4, then adding 3".***

Work out the **number** of sticks for the shape that has shape-number **10.**

1 mark

Ann uses **59 sticks** to make another **L** shape in this pattern.

What is its shape-number?

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

2 marks

Here is Ann's rule again:

"I find the number of sticks for a shape by first multiplying the shape-number by 4, then adding 3".

Write a formula to work out the number of sticks for any **L** shape.

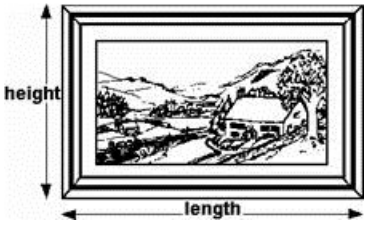
Use **S** for the number of **sticks** and **N** for the **shape-number.**

S =

2 marks

Q2. Here are some picture frame sizes.

height in cm	10	12	14	16
length in cm	16	20	24	28



For each frame, the length is **twice** the height, **subtract 4.**

What is the **length** of a frame which has a **height** of **36cm**?

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

cm

2 marks

For each frame, the length **(L)** is **twice** the height **(H)**, **subtract 4.**

Write this in symbols.

L =

2 marks

A **new** frame has its length **twice** its height.
It is made with 126cm of wood.

What is the **length** of this frame?

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

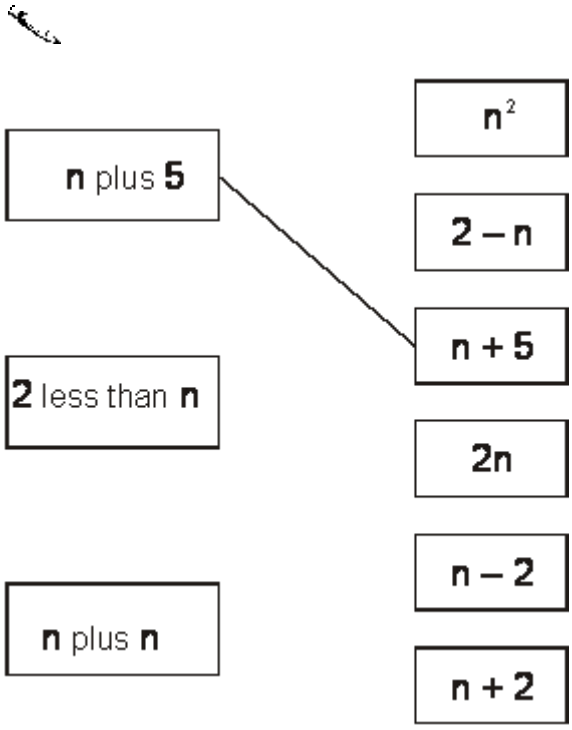
cm

2 marks

Q3. n stands for number.

Match the equivalent expressions.

One has been done for you.



2 marks

Q4. n stands for a number.

Complete this table of values.

n	$5n - 2$
20	
	38

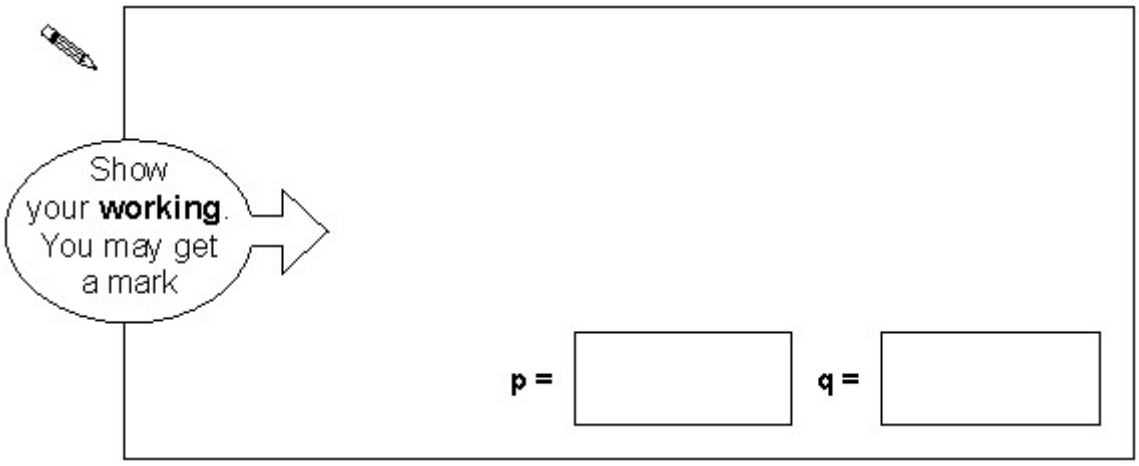
2 marks

Q5. **p** and **q** each stand for whole numbers.

$$p + q = 1000$$

p is 150 **greater** than **q**.

Calculate the numbers **p** and **q**.



2 marks

Q6. The rule for this sequence of numbers is **'add 3 each time'.**

1 4 7 10 13 16 …

The sequence continues in the same way.

Mary says,

'No matter how far you go there will never be a multiple of 3 in the sequence'.

Is she correct?

Circle Yes or No. **Yes / No**

Explain how you know.

.....

.....

.....

1 mark

Q7. 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.

.....

2 marks

Q8. m stands for a whole number greater than 10 and less than 20

n stands for a whole number greater than 2 and less than 10

What is the **smallest** number that $m \times n$ could be?

1 mark

What is the **largest** number that $m - n$ could be?

1 mark

Q9. k stands for a number.

Complete the number sentences below.

One has been done for you.

5 more than k is .....k + 5.....

2 less than k is .....

3 more than twice k is .....

6 more than half of k is .....

2 marks