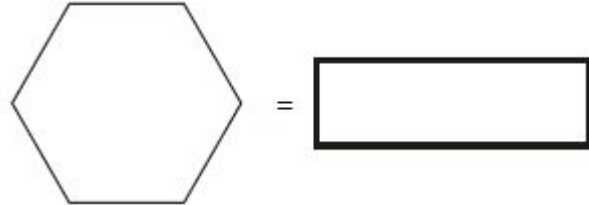
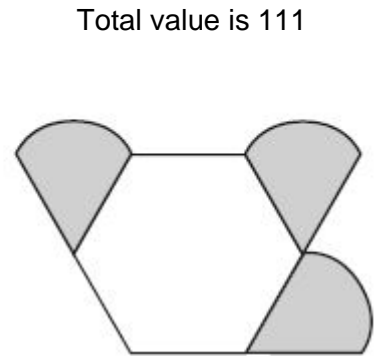
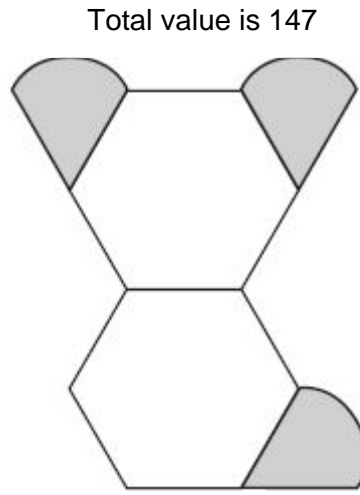


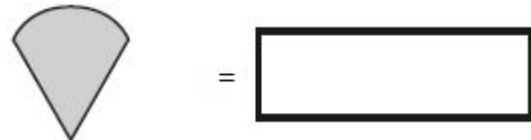
**Q1.** Amina is making designs with two different shapes.

She gives each shape a value.

Calculate the value of each shape.



1 mark



1 mark

**Q2.**  $k$ ,  $m$  and  $n$  each stand for a whole number.

They add together to make 1500

$$k + m + n = 1500$$

$m$  is **three times** as big as  $n$ .

$k$  is **twice** as big as  $n$ .

Calculate the numbers  $k$ ,  $m$  and  $n$ .

Show  
your  
method

$k =$

$m =$

$n =$

2 marks

**Q3.** Here are three equations.

$$a + b + c = 30$$

$$a + b = 24$$

$$b + c = 14$$

What are the values of  $a$ ,  $b$  and  $c$ ?

$a =$

$b =$

$c =$

2 marks

**Q4.** 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,

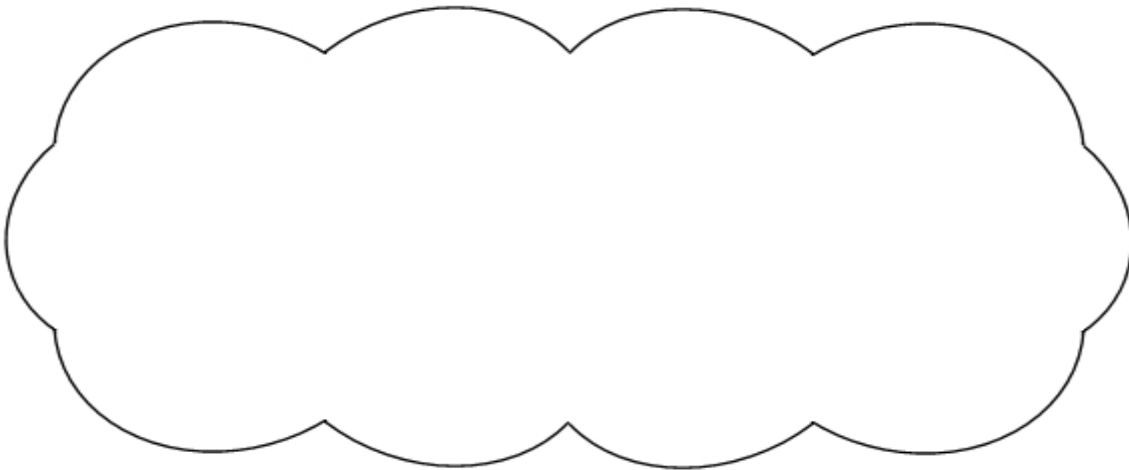
***'No matter how far you go there will never be a multiple of 3 in the sequence'.***

Is she correct?

Circle Yes or No.

**Yes / No**

Explain how you know.



**Q5.**  $n$  stands for a whole number.

$2n$  is greater than 30

$5n$  is less than 100

Write **all** the numbers that  $n$  stands for.

\_\_\_\_\_

2 marks

**Q6.** Write the missing numbers so that  $2a + 5b = 30$

One is done for you.

$2a + 5b = 30$  when  $a = 0$  and  $b = \underline{\quad 6 \quad}$

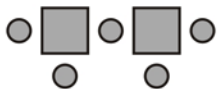
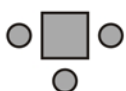
$2a + 5b = 30$  when  $a = 5$  and  $b = \underline{\hspace{2cm}}$

1 mark

$2a + 5b = 30$  when  $a = 15$  and  $b = \underline{\hspace{2cm}}$

1 mark

**Q7.** Here is a sequence of patterns made from squares and circles.



number of squares	number of circles
1	3
2	5
3	7

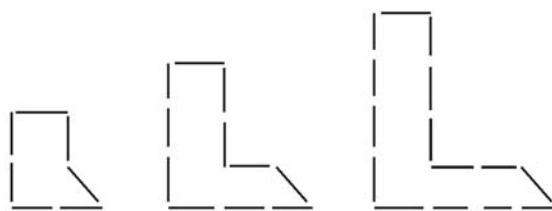
The sequence continues in the same way.

Calculate how many **squares** there will be in the pattern which has **25 circles**.

Show your method

**Q8.**

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



Shape-number:	<b>1</b>	<b>2</b>	<b>3</b>
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**

Ann uses **59 sticks** to make another **L** shape in this pattern. What is its shape-number?

Show your method

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**.