ELTHAM COLLEGE

11+ Entrance Examination

Mathematics

Name: ………………………………………………………………….

Time: **45 Minutes**

Instructions:

- You **may not** use a calculator in this test.
- There are 12 questions on this test - try to answer all the questions.
- Write all your answers and working on the test paper – do not use any rough paper.
- Marks may be awarded for working.
- Check your work carefully.

TOTAL: …… out of 75 marks

1 Work out the answers to these sums.
Show your working out.

a) 28 + 405 + 324

2 marks

b) 2765 – 1879

2 marks

c) 837 × 7

2 marks

d) 452 × 38

3 marks

e) 1107 ÷ 9

2 marks

f) 1599 ÷ 13

3 marks

	Decimal Operations	

2 Work out the answers to the following sums:

a) $(14.7+5.3) \div 4 =$ ....

2 marks

b) $8.4 \times 5 - 3.9 =$ ....

2 marks

c) $6 \times 2.4 + 24 \times 0.6 =$ ....

2 marks

	Percentages	

3 a) Fill in the missing values:

10% of 90 = ………………….

5% of 90 = …………………..

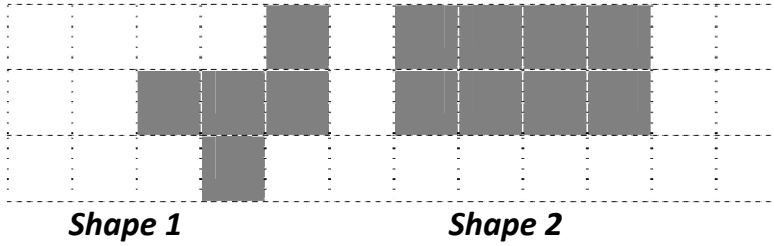1% of 90 = …………………..

3 marks

b) Use your answers to part a) to find 47% of 90.
   Show your working out.

2 marks

4 A shape can be made by joining **<u>squares</u>** together so that the edges touch.

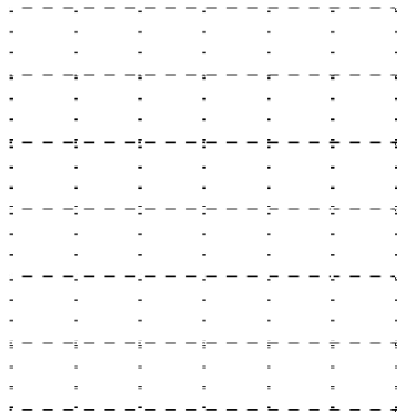Here are two different shapes:

Shape 1   **Shape 2**

These shapes both have a perimeter of 12.

a) Write down the area of each shape.

Shape 1: ……………………..squares

Shape 2: ……………………..squares   2 marks
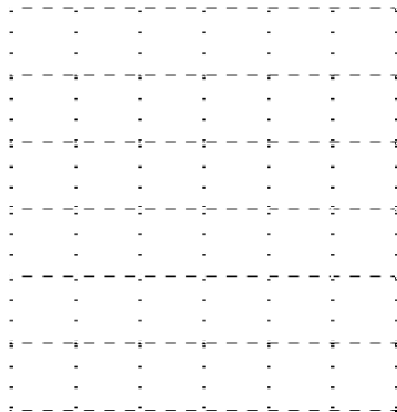
a) Draw a **different** shape with a perimeter of 12.
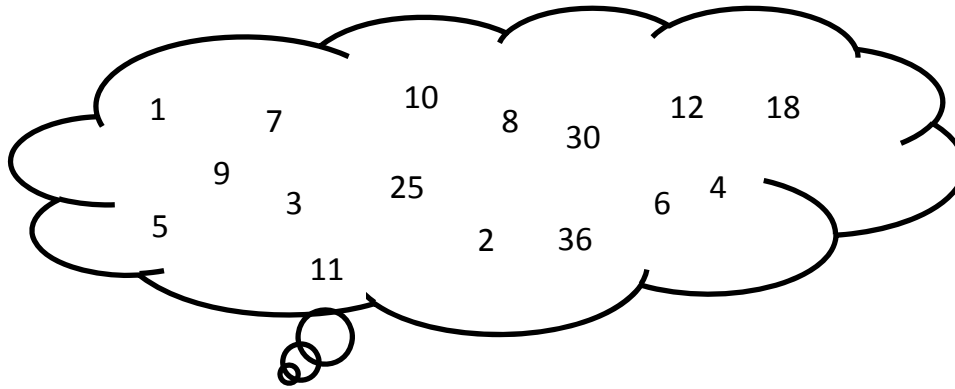

1 mark

b) Draw a shape with an **area** of 12, and a **perimeter** of 16.

2 marks

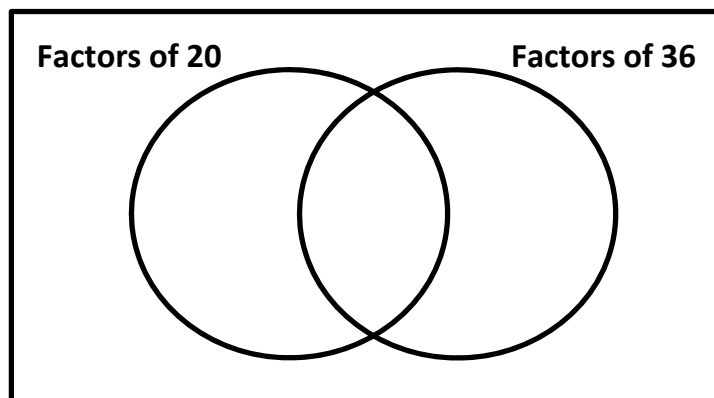**5**   a) From the list below, circle all of the numbers that are factors of 36.

1   7   10   8   30   12   18   9   25   3   6   4   5   2   36   11

3 marks

b) Write down the factors of 20.

3 marks

c) Write the factors of 20 and 36 in this Venn diagram.

Factors of 20		Factors of 36

3 marks

d) What is the **highest common factor** of 20 and 36?

2 marks

e) The **lowest common multiple** of two numbers can be found using the following method:

> Multiply the two numbers together.
>
> Divide the answer by the highest common factor

Use this method to find the **lowest common multiple** of 20 and 36.

2 marks

6

The hour and minute hands of a clock make an angle.

The size of the angle depends on the time that the clock is showing.

   a) What is the obtuse angle between the hands at 8 o'clock?

1 mark

   b) Give one time when the angle between the hands will be exactly 90°.

1 mark

   c) The angle between the hour and minute hand is exactly 60°.
       What time could the clock be showing?

1 marks

   d) At 11 o'clock the angle between the hands is exactly 30°.
       What is the next time when the angle between the hands will be
       exactly 30°?

2 marks

7 Follow the clues to find the mystery number from the list below.

- The number has two digits.
- Both of the digits are even.
- The digit in the tens place is greater that the digit in the ones place.
- The ones digit is not in the three times table.
- The tens digit is not double the ones digit.
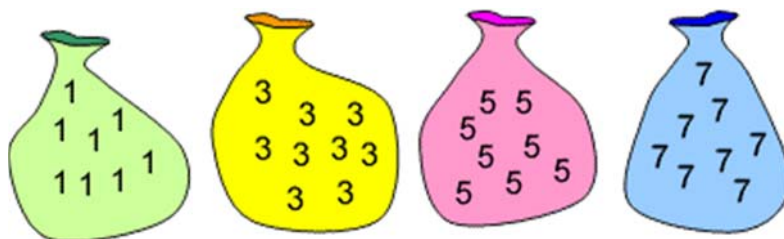- The sum of the two digits is a multiple of five.

18	86
120	42
46	64
80	8
22	83

2 marks

8

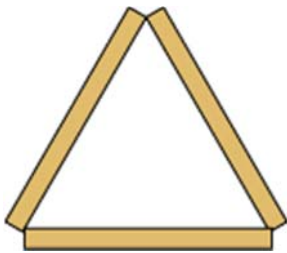Four bags contain a large number of 1s, 3s, 5s and 7s.

Pick any ten numbers from the bags above so that their total is 37.
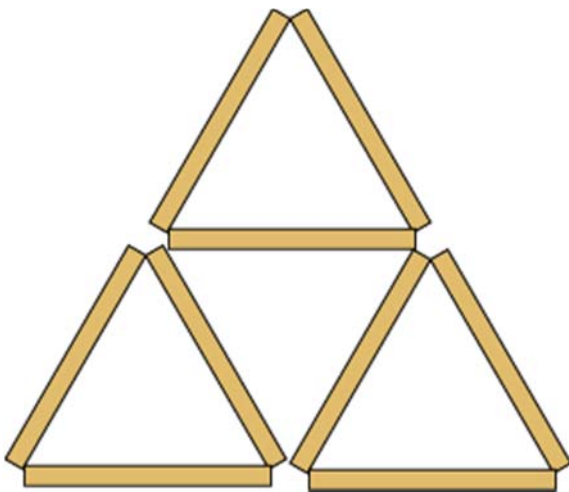
3 marks

9 I was exploring a puzzle in which headless match sticks had to be moved to make a different number of triangles.

I made **one small** triangle

3 matches

I made it into **4 small triangles** by adding 6 matches.

9 matches

I added another row to make the next shape in the pattern and counted the number of small triangles and counted the matches.

How many small triangles are in the next shape in the pattern?

2 marks

How many matches are in the next shape in the pattern?

2 marks

10 Solve these equations to find the number represented by each letter.

a) 15s = 90

1 mark

b) 5t + 18 = 78

2 marks

c) $\frac{n}{2} - 3 = 22$

2 marks

11 This sum is made using odd numbers:

(1 + 3) × 5 − 7 = 13

Complete the following sums to make the answers shown.

You may use any of these symbols:

+   -   ×   ÷   (   )

a)   1   3   5   7   = 27

2 marks

b)   1   3   5   7   = 8

2 marks

c)   1   3   5   7   = 63

2 marks

12 Katie had a pack of twenty cards numbered from 1 to 20.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
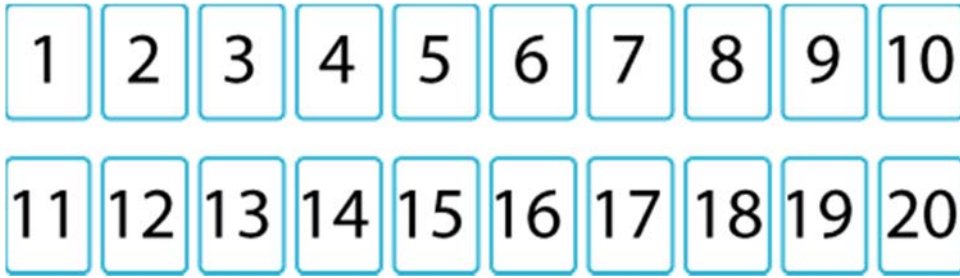
She arranged the cards into six unequal piles.

The numbers on the cards in each pile added to the same total.

What was the total and how could this be done?

3 marks

13 In the 2×2 multiplication square below, the boxes at the end of each row and the foot of each column give the result of multiplying the two numbers in that row or column.

7	5	35
3	4	12
21	20	■

The 3×3 multiplication square below works in the same way. The boxes at the end of each row and the foot of each column give the result of multiplying the three numbers in that row or column.

			15
			108
			224
144	8	315	■

4 marks

The numbers 1−9 may be used once and once only.

Can you work out the arrangement of the digits in the square so that the given products are correct?

END OF TEST – NOW GO BACK AND CHECK YOUR ANSWERS