

# Kent College, Canterbury

## Entrance Examination 2007 Mathematics 2

Name .....

Time : 45 minutes

**Read the following carefully:**

1. Start at the beginning and work through the questions as quickly and as carefully as you can.
2. If you try a question and find you cannot answer it, leave it and go onto the next.
3. Do any working in the space provided.
4. Do not use a calculator.

1. In the following calculations each of the letters a, b, c, d and e stand for a number.

a) E.g. If  $3 \times a + 5 = 14$  then  $a = 3$  since  $3 \times 3 + 5 = 14$ .

Now try to find the numbers that b, c, d and e stand for.

b)  $7 \times b - 3 = 11$

$b = \dots\dots\dots$  (2)

c)  $56 - c = 9$

$c = \dots\dots\dots$  (2)

d)  $d \times d = 64$

$d = \dots\dots\dots$  (2)

e)  $8 \times e - 18 = 6 \times e + 2$

$e = \dots\dots\dots$  (2)

2. Using the rule 'multiply by 6 and add 7' write in the missing numbers

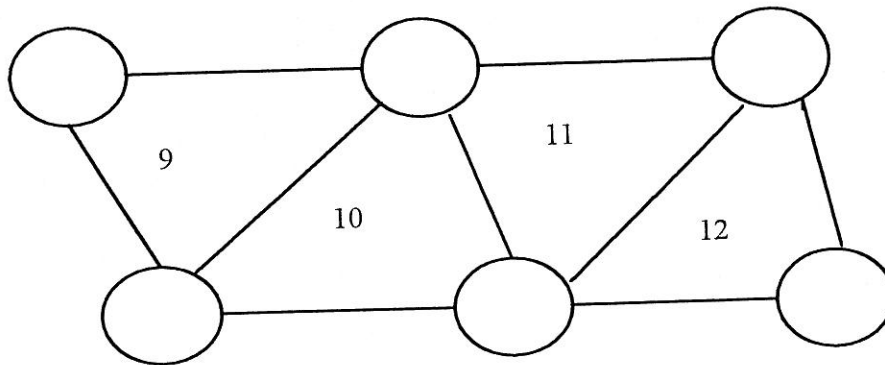
7  $\longrightarrow$  49

9  $\longrightarrow$   $\dots\dots\dots$  (2)

21  $\longrightarrow$   $\dots\dots\dots$  (2)

$\dots\dots\dots$   $\longrightarrow$  61 (2)

3. Put numbers 1, 2, 3, 4, 5 and 6 in the circles so that each triangle adds up to the number inside.



(6)

4. Write down all the 4- figure numbers, which can be made from the digits

**2, 3, 5, 3.**

(6)

5. Two numbers multiply together to give 91.  
The same numbers add up to 20. What are the numbers?

(4)

6. A lottery win of £435 was shared equally between among 15 people. How much did each person receive? (Show all your working.)

(4)

7. \* represents a missing digit. Find the missing digits in the sums below and rewrite the sums.

a)  $2^*8 + 28^* = ^*45$

b)  $9^*7 - 24^* = ^*69$

(6)

8. Find the next two numbers in each of the following sequences

a) 1, 4, 9, 16, ....., ..... (2)

b) 3, 6, 12, 24, ....., ..... (2)

c) 2, 4, 8, 16, ....., ..... (2)

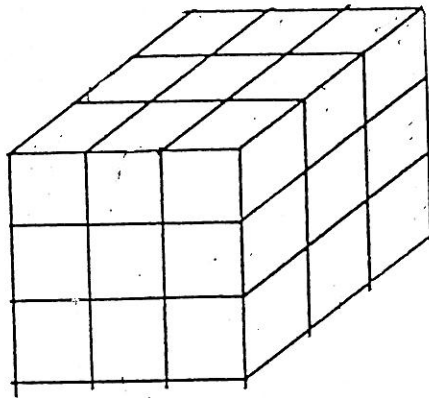
d) 1, 1, 2, 3, 5, 8, ....., ..... (2)

e) 3, 6, 11, 18, 27, ....., ..... (2)

9. Arrange the digits of the number 2936 in descending (going down) order.  
Arrange the digits of the number 2936 in ascending (going up) order.  
Find the difference between these two numbers.

(4)

10. A cube of side 3 cm is painted red. It is then cut into a set of cubes of side 1 cm.



a) How many cubes of side 1 cm will there be?

.....(2)

b) How many 1cm cubes will there be with :

i) 3 red sides?

.....(2)

ii) 2 red sides?

.....(2)

iii) 1 red side?

.....(2)

iv) No red sides?

.....(2)

11.

$\otimes$ ,  $\square$ ,  $\blacklozenge$  stand for numbers and keep their own values in the 4 equations. Find the numbers  $\otimes$ ,  $\square$ ,  $\blacklozenge$

$$1 + \square = 6$$

$$\blacklozenge - \square = 2$$

$$\blacklozenge + \otimes = 9$$

$$\square + \otimes = \blacklozenge$$

$$\square = \dots\dots\dots$$

$$\blacklozenge = \dots\dots\dots$$

$$\otimes = \dots\dots\dots$$

(6)

12. Jane is 4 years older than Andy and Andy is 2 years older than Tom. If Jane is twice as old as Tom, how old are Andy, Tom and Jane?



Andy is.....(2)

Tom is.....(2)

Jane is.....(2)

13. Three pupils Tom, Ben and Daniel have given information to their teacher but all jumbled up on the same piece of paper. She knows that the surnames of the boys are Milton, Hall and Armstrong. Their favourite subjects are French, Maths and Technology whilst they enjoy rugby, skateboarding and playing the guitar as hobbies. Use the following information to give each boy's full name, his favourite subject and hobby.

- a) Ben's surname was Hall and he hates skateboarding.
- b) Tom plays the guitar in a band.
- c) Armstrong spends lunchtime in the Technology classroom.
- d) The skateboarder is excellent at Maths.

Ben..... likes..... and his hobby is .....(3)

Tom..... likes..... and his hobby is .....(3)

Daniel..... likes..... and his hobby is .....(3)

14. Arrange the following five girls in order of their ages, starting from the youngest: Sue is older than Ria and younger than Jill. One other girl separates Jill and Michelle in age. Michelle is neither the youngest nor the eldest. Paula is the youngest.

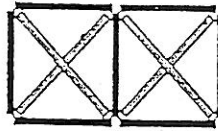
.....(5)



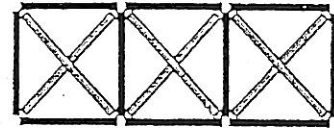
15. Look at the following patterns made from sticks of two colours.



pattern 1



pattern 2



pattern 3

- (i) Draw pattern 4

(2)

- (ii) Complete the following table for patterns 1 to 4

| pattern number | number of black sticks | number of grey sticks |
|----------------|------------------------|-----------------------|
| 1              |                        |                       |
| 2              |                        |                       |
| 3              |                        |                       |
| 4              |                        |                       |
|                |                        |                       |
|                |                        |                       |

(4)

- (iii) Extend the table for patterns 5 and 6.

(2)

- (iv) Describe a rule to find the number of grey sticks needed when you are told the pattern number.

Answer: .....

.....

(2)