SEVENOAKS SCHOOL

YEAR 7 (11+) ENTRANCE EXAMINATION
January 2013
for entry in September 2013

MATHEMATICS

Name: ……

School: …….. .

Time allowed: 1 hour

Equipment needed: Pen, pencil, eraser and ruler.
Calculators are **not** permitted.

Information for candidates:

1. Write your name and school on this sheet.
2. Write your answers on the question paper in the space provided.
3. There are 15 questions in this paper, try to answer all of them, but don't worry if you don't complete the paper. If you get stuck, just go on to the next question and if you have time at the end come back to the one(s) you left.
4. There are 60 marks in total available for this paper. Marks for each question are shown in square brackets [ ] after the question.
5. Show all your working. You may be awarded marks for correct working even if your final answer is incorrect, and a correct answer unsupported by correct working may not receive full marks.

1) Evaluate the following:

(a) $365 + 7421 + 29$

Answer ……. [2 marks]

(b) $972 - 678$

Answer ……. [2 marks]

(c) 654×56

Answer ……. [2 marks]

(d) $3927 \div 17$

Answer ……. [2 marks]

2) Write the number eighty-six thousand and fourteen in figures

Answer ……. [1 mark]

3) Evaluate $\frac{3}{4} \times \frac{5}{7}$

Answer ……. [2 marks]

4) If I buy 6 pens at £1.15 each and 10 refills at 56p each, how much change will I get if I pay with a £20 note?

Answer ……. [3 marks]

5) Write down a number that is smaller than 0.8 and bigger than $\frac{5}{7}$

Answer ……. [2 marks]

6) Fill in the missing numbers in the following sequences:

(a) 1, 3, 5, _, _, 11

(b) 1, 3, 7, 13, _ , _ , 43

(c) 1, 2, 0, 3, -1, 4, _ , _

[3 marks]

7) Find the value of x for each of the following equations:

(a) $4x - 3 = 21$

Answer ……. [1 mark]

(b) $3(x + 10) = 60$

Answer ……. [2 marks]

(c) $5x + 1 = 2x + 7$

Answer ……. [2 marks]

(d) $\frac{3x}{2} + 3 = 15$

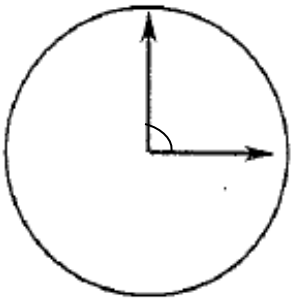
Answer ……. [2 marks]

8) Albert, Brian and Charlie are dogs. Albert and Brian weigh 22 kg together. Brian and Charlie weigh 20 kg together. All three dogs weigh 30 kg. How much does each dog weigh?

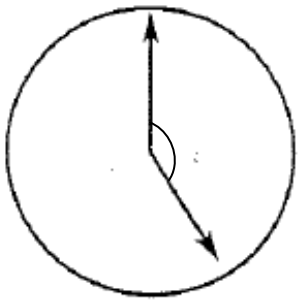
Albert …… Brian …… Charlie …… [3 marks]

9) What is the smaller angle between the hour hand and the minute hand at the following times?

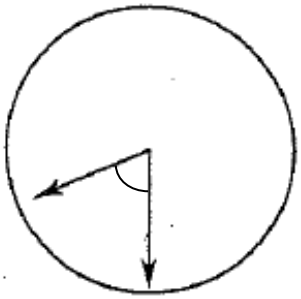
3 o'clock



5 o'clock



8:30

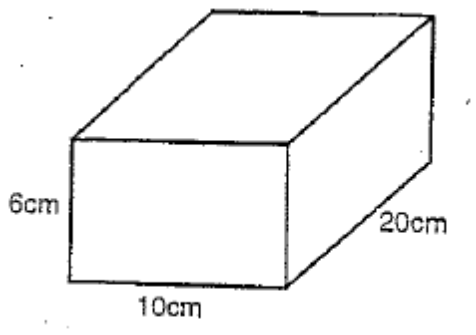


Angle …… Angle…… Angle…… [3 marks]

10) Tim, David and Alison are given some money by their grandfather. Tim gets twice as much as David and three times as much as Alison. If they get £49.50 in total, how much do they each get?

Tim …… David …… Alison …… [4 marks]

11) (a) How many 2 × 2 × 2 cm cubes can you fit into the box below



Answer …….. [3 marks]

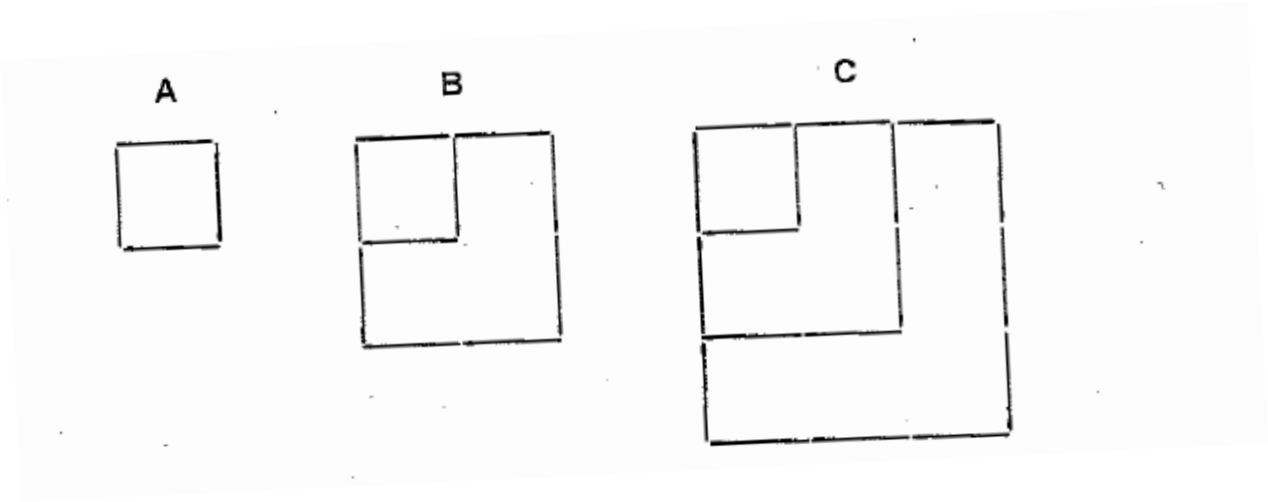
(b) How much space is left if you pour half a litre of water into the box (1 litre of water has a volume of $1000cm^3$).

Answer …… [1 mark]

12) A ball is dropped from a height of 10 metres. It bounces off the floor to half its original height. How far will the ball have travelled when it reaches the floor for the second time?

Answer …… [2 marks]

13) A pattern is made using matches. The first three patterns are shown below:



(a) Write down the number of matches used in each pattern

A: …… B: …… C: ……. [3 marks]

(b) Draw the 4^{th} pattern in the sequence

[2 marks]

(c) How many matches have you used for this pattern?

Answer …… [1 mark]

(d) Without doing any more drawing, write down how many matches will be used in:

(i) pattern E

Answer …… [2 marks]

(ii) pattern J

Answer …… [2 marks]

14) The number 36 can be written as a product of 2's and 3's i.e. $2 \times 2 \times 3 \times 3 = 36$ and 48 can be written as $2 \times 2 \times 2 \times 2 \times 3 = 48$. Write the following numbers in a similar way.

(a) 108

Answer …… [2 marks]

(b) 1944

Answer …… [2 marks]

15) Today Jack is twice as old as Jill. In ten years' time Jack will be one and a half times as old as Jill. How old will Jack and Jill be in twenty years' time?

Jack …….. Jill …….. [4 marks]