2009 / lst

OUNDLE SCHOOL

Name:

Mathematics Examination for Entrance to the First Form **Time : 1 hour**

This paper consists of two sections, Sections A and B. For entry into Oundle School, candidates are only expected to complete Section A although you may tackle some of Section B if you want to and if you have time.

Write ALL of your working on this paper. No other paper may be used. The answers alone are of no use. Show enough working on each question to show how you are getting your answer.

NO CALCULATORS ALLOWED

SECTION A

1. Work out 58 + 74 Answer ……	2. Work out 113 – 29 Answer …….
3. Multiply 54×7 Answer …….	4. Work out $468 \div 9$ Answer …….

5. Work out : twice the difference between the largest and the smallest number

12, 6, 9, 21, 7, 23

Answer ……

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6. Write as a number : one hundred thousand and ten

Answer ……

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7. James and Susie write "multiple choice" Maths tests in which you can score negative marks for wrong answers. Last term, James improved his average test score from −6 to 5, while Susie improved her average from −8 to 4. Who has made the bigger improvement, and by how much ? (SHOW YOUR WORKING!)

Answer …….

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8. Greta runs 2 miles in 16 minutes.
Running at the same speed, how long would she take to run 5 miles ?

Answer : …….

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9. On a clock face, what is the angle between the hands at 5.20 ?
(Remember : the hour hand will have moved on since 5.00!)

Answer …….

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10. Harry says that 5.2 minutes is equal to 320 seconds. Is he correct ? You must show your full working and, if you think he is wrong, you must work out the correct answer.

Answer ……..

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11. Krish's school day starts at 8.30 am. Before break, he has three 45-minute lessons, with a 5 minute "moving period" between lessons. Break starts as soon as lesson 3 ends. At what time does break start ?

Answer …….

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12. (a) Work out : $\frac{1}{4}$ of 320

Answer …….

(b) What is $\frac{3}{4}$ of 16 ?

Answer …….

(c) Write 0.3 as a fraction.

Answer …….

(d) Work out : $1\frac{1}{4} + 2\frac{1}{2}$

Answer …….

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13. Continue the sequences, giving the next two terms each time :

(a) –2, 2, 6, 10, 14, …….. , ……

(b) 16, 8, 4, 2, 1, …… , ……..

(c) 1, 2, 4, 7, 11, 16, …… , …….

(d) 1, 3, 4, 7, 11, 18, …… , ……

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14. Put one of the signs $+, -, \times, \div$ in each of the gaps to make both sums have the same answer. You are allowed to use the same sign twice on any line.

For example : 40 ….. 5 = 6 ….. 2

could be 40 ÷ 5 = 6 + 2

(a) 5 ….. 3 = 16 ….. 8

(b) 92 ….. 7 = 11 ….. 9

(c) 84 ….. 7 = 48 ….. 4

(d) 27 ….. 9 = 3 ….. 6

(e) 10 ….. $\frac{1}{3}$ = 6 ….. 5

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15. You are told that $36 \times 52 = 1872$. Use this fact to write down the answers to :

(a) 360×52 Answer ……

(b) $3\,600 \times 520$ Answer ……

(c) $3\,600 \times 0.52$ Answer ……

(d) $18\,720 \div 5.2$ Answer ……

(e) 18×208 Answer ……

(For (e) you must show working in the space below so it is clear how you used $36 \times 52 = 1872$ to get the answer for 18×208)

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16. For the annual school musical, the hall contained two "adult" sections with 80 seats each and four "pupil" sections with 100 seats each. On the opening night, the "adult" sections were 50% full and the "pupil" sections were 70% full.

(a) Work out the <u>total</u> number of people (pupils + adults) that attended the musical on the opening night.

Answer ……..

(b) What was the average (mean) number of people per section on that night ?

Answer ……..

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17. Mum's purse contains an equal number of £5, £10 and £20 notes, and no coins. The total value of money in her purse is £280. How many notes are in her wallet ?

Answer ……...

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18. A "line of symmetry" is like a mirror.

The letter **D** has one line of symmetry, running horizontally through the middle as shown here -----**D**----- because the top half and the bottom half reflect each other exactly. The letter **G** has no lines of symmetry.

Which letter/s in the word **MATHEMATICS** have no lines of symmetry ?

Answer …….

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19. What is the smallest **even** 5-digit number that you can make with the digits 5, 3, 9, 4, 8 using each digit only once ?

Answer …….

END OF SECTION A

SECTION B

PLEASE REMEMBER THAT YOUR FULL WORKING DETAILS MUST BE SHOWN IN EVERY QUESTION !

20. What is 25% of 30% of 40% of 300 ?

Answer ……..

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21. If two-thirds of a number is 24, what is three-quarters of the same number ?

Answer : ……..

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22. When Harry bought his train ticket, he received £2.50 in change. He noticed that for each coin in his change, there was exactly one other coin of the same value. What was the coin of smallest value in Harry's change?

Answer …….

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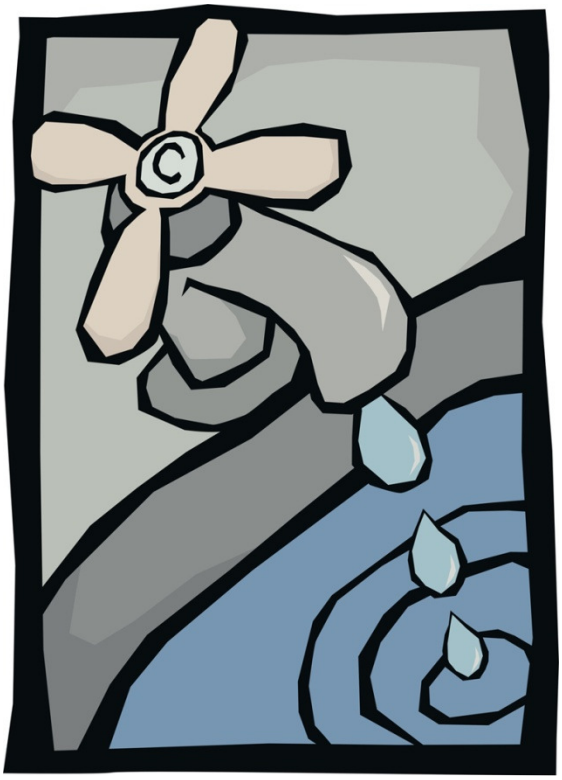
23. A very greedy shopkeeper increased the price of a small chocolate sweet from 10 p to £1.00. Work out the percentage increase in price.

Answer ……

24.



A small bath can be filled by turning on Supa-Tap, Dupa-Tap, or both together.
Supa-Tap can fill the bath in 2 minutes.
Dupa-Tap can fill the bath in 3 minutes.
If Supa-Tap and Dupa-Tap are turned on together, work out how long it will take to fill the bath.

Answer : ……

25. If $a \times b = 2$

$b \times c = 24$

and $c \times a = 3$

and you are told that a, b and c are all positive numbers

what is the value of $a + b + c$?

Answer : …….

END OF SECTION B