

# 2008/3<sup>rd</sup> A

Your name:

**OUNDLE SCHOOL**

**Examination for Entrance to the Third Form  
MATHEMATICS**

**Section A  
30 minutes**

*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.*

**You are NOT allowed to use a calculator for this Section.**

**NO CALCULATORS**

1. Work out  $12.6 - 3.9 + 15$

Answer .....

2. Work out  $284 \times 1.02$

Answer .....

3. Divide 3521 by 7

Answer .....

4. Work out  $\frac{3}{4} - \frac{1}{3}$

Answer .....

5. John recorded the temperature each night for 5 nights.  
They were:  $+1^{\circ}\text{C}$ ,  $-4^{\circ}\text{C}$ ,  $-2^{\circ}\text{C}$ ,  $+3^{\circ}\text{C}$  and  $+1^{\circ}\text{C}$ .  
What was the average (mean) temperature per night?

Answer .....

6. What is 351 seconds in minutes and seconds?

Answer .....

7. John leaves Calais at 0745 and arrives in Marseilles  $9\frac{1}{2}$  hours later. What time does he arrive in Marseilles?

Answer .....

If the journey is a total of 1045km, how far on average did he travel every hour?

Answer .....

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8. Change 5.2 hours into minutes.

Answer .....

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9. Two years ago a house was bought for £220 000. If its value has increased by 8% per year, how much is it now worth?

Answer .....

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10. Continue the patterns, giving the next two numbers each time:

a) 17, 14.5, 12, 9.5, ....., .....

b) 1, 1, 2, 3, 5, 8, 13, ....., .....

c) 1, 4, 9, 16, 25, ....., .....

d) 1.5, 0.75, 0.375, ....., .....

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11. Fill in the missing numbers:

$$0.026 \times \dots\dots\dots = 260\,000$$

$$12 \div \dots\dots\dots = 600$$

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12. Over 12 league matches, Manchester United had an average (mean) crowd attendance of 52 480. How many people had watched all 12 matches in total?

Answer .....

If each ticket costs £40, how much money did Manchester United make on the tickets?  
Give your answer to the nearest million.

Answer.....

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13. Peter buys 3 packets of crisps and 2 cans of orange for £2.50. He then notices that if he had bought 2 packets of crisps and 3 cans of orange he would have spent £2.75.  
Work out the cost of each item

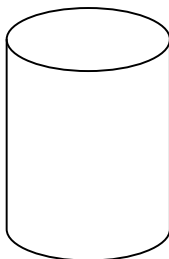
Packet of crisps .....

Can of orange .....

- 
14. On a clock face, what is the obtuse angle between the hands at 2.30?

Answer .....

- 15.



The diagram shows a can of radius 3 cm and a height of 14cms.  
The volume (V) of a can is given by the formula

$$V = \pi r^2 h \text{ where } r \text{ is the radius and } h \text{ is the height.}$$

Taking  $\pi = \frac{22}{7}$ , calculate the volume.

Answer .....

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**END OF SECTION A**

# 2008/3<sup>rd</sup> B

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MATHEMATICS**

**Section B  
30 minutes**

*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. CALCULATORS SHOULD BE USED FOR THIS SECTION.*

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1. Use your calculator to work out  $\sqrt{43 \cdot 2 - 2 \cdot 9^2}$  giving your answer to 1 decimal place

Answer .....

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2. Find  $\frac{3}{7}$  of 80 kg giving your answer to the nearest kg.

Answer .....

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3. 4 boxes of oranges weigh 70 kg. Find the weight of 30 boxes.

Answer .....

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4. a) Find the mean (average) of the numbers 21, 27, 31, 20, 35

Answer .....

- b) Five people have an average age of 23. When a sixth person joins the group, the average age changes to 26. How old is the sixth person?

Answer .....

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5. If Nick scored 37 out of 85 in his French test. What percentage did he score giving your answer to the nearest whole number?

Answer .....

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6. A tank has a rectangular base with dimensions 2.2 m by 3.5 m. If its sides are vertical and it contains 10.78 m<sup>3</sup> of water, find the depth of water in the tank.

Answer .....

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7. How many numbers between 1 and 1000 are factors of both 3 and 5?

Answer .....

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8. If I multiply a number by 6 and add 8, the answer is 62. What is the number?

Answer .....

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9. If  $a = 3$  and  $b = -2$ , find the value of

i)  $3a^2 + 2b$

i) Answer .....

ii)  $\frac{2a-b}{b^2}$

ii) Answer .....

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10. My brother is four years younger than I am. Three years ago I was twice as old as him.

a) If my age now is  $x$  years, find, in terms of  $x$ :

(i) My brother's age now.

(i) Answer.....

(ii) My age three years ago.

(ii) Answer.....

(iii) My brother's age three years ago.

(iii) Answer.....

b) Form an equation in  $x$  and solve it to find my brother's age now.

Answer .....

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11. Remove the brackets and simplify:

i)  $6(2x - 3)$

i) Answer .....

ii)  $14 - 3(2x + 4)$

ii) Answer .....

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12. Solve for  $x$ :

i)  $3x + 4 = 1$

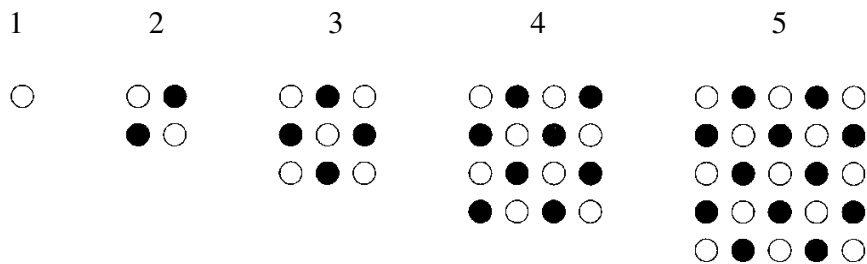
i) Answer .....

ii)  $5x - 4 = 2(x + 3)$

ii) Answer .....

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13. Look at the following patterns and then answer the questions.



(a) How many balls in total will there be in pattern number 10? (a).....

(b) How many black balls will there be in pattern number 10? (b).....

(c) How many white balls will there be in pattern number 10? (c).....

(d) Write down the total number of balls in the  $n^{\text{th}}$  pattern (d).....

(e) If  $n$  is odd, write down the number of black balls in the  $n^{\text{th}}$  pattern

(e).....

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**END OF EXAMINATION**