

# 2009/3<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  $22.6 - 2.8 + 18$

Answer .....

2. Work out  $372 \times 2.04$

Answer .....

3. Divide 1792 by 7

Answer .....

4. Work out  $\frac{3}{5} - \frac{1}{3}$

Answer .....

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

Answer .....

6. What is 582 minutes in hours and minutes?

Answer .....

7. John leaves Calais at 0815 and arrives in Lyon  $7\frac{1}{2}$  hours later. What time does he arrive in Lyon?

Answer .....

If the journey is a total of 825km, how far on average did he travel every hour?

Answer .....

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8. Change 8.4minutes into seconds.

Answer .....

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9. Two years ago a house was bought for £145 000. If its value has decreased by 5% 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) 8, 6.4, 4.8, 3.2, ....., .....

b) 4, 5, 9, 14, 23, 37, ....., .....

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

d) 1.7, 0.85, 0.425, ....., .....

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11. Fill in the missing numbers:

$$0.034 \times \dots = 3400\ 000$$

$$34 \div \dots = 170$$

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12. Over 12 lessons a teacher asked an average of 25 questions. What is the total number of questions asked by the teacher during the course of the 12 lessons?

Answer .....

If the pupils managed to answer 85% of the questions correctly between them, how many questions were not answered correctly?

Answer.....

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13. Peter buys 3 pens and 2 pencils for £1.55. He then notices that if he had bought 2 pens and 3 pencils he would have spent £1.45.  
Work out the cost of each item

Pen .....

Pencil .....

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14. On a clock face, what is the obtuse angle between the hands at 12.30?

Answer .....

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15. The formula for the volume of a sphere with radius  $r$  cm is  $= \frac{4}{3}\pi r^3$ . Taking  $\pi$  to be  $\frac{22}{7}$  find the volume of a sphere with radius 7cm. Leave your answer as a fraction in its lowest terms.

Answer .....

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**END OF SECTION A**

# 2009/3<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  $\sqrt{24.1^2 - 3 \cdot 9^2}$  giving your answer to 1 decimal place

Answer .....

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2. Find  $\frac{2}{5}$  of 49 metres giving your answer to the nearest m.

Answer .....

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3. 7 boxes of bananas weigh 110 kg. Find the weight of 46 boxes.

Answer .....

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4. a) Find the mean (average) of the numbers 3.2, 2.8, 3.1, 5.6, 3.5

Answer .....

b) Five people win an average of £230 in a special lottery competition. When it is revealed that a 6<sup>th</sup> person has won some money, the average winnings changes to £260. How much did the 6<sup>th</sup> person win?

Answer .....

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5. If Sharon scored 45 out of 92 in her Latin test. What percentage did she score giving your answer to the nearest whole number?

Answer .....

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6. A man digs a hole in the ground. The entrance to the hole has dimensions 1.3m by 2.1m, and the depth of the hole is unknown. Later the hole is flooded and the volume of water required to fill it exactly is measured to be  $15.561\text{m}^3$ . How deep is the hole?

Answer .....

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7. What is the largest whole number that is a factor of both 120 and 48?

Answer .....

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8. If I multiply a number by 8 and add 6, the answer is 71. What is the number?

Answer .....

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

i)  $(3a + b)^2$  i) Answer .....

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

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10. If you decrease a certain number by 20%, you get 15 less than you would get if you increased it by 30%. By calling the number  $x$  and forming an equation, find the number. [You must show an equation and its solution]

Answer .....

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11. Remove the brackets and simplify:

i)  $3(x - 5)$  i) Answer .....

ii)  $6 - (y - 2)$  ii) Answer .....

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12. Solve for  $x$ :

i)  $5x + 1 = 17$

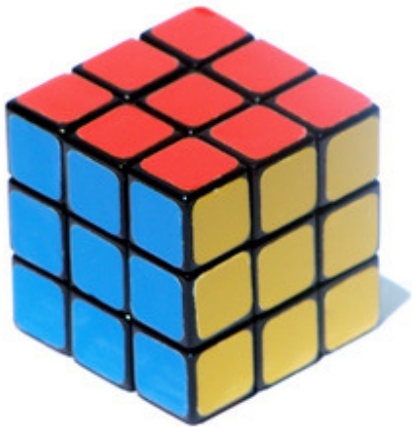
i) Answer .....

ii)  $2x - 3(x + 1) = 2x - 4$

ii) Answer .....

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13.



(i) The diagram shows a block made up of 27 cubes. The outside faces are all painted. How many of the cubes have

- a) exactly one painted face?
- b) exactly two painted faces?
- c) exactly three painted faces?
- d) no painted faces?

Answers:

(ii) In instead of having 3 cubes in each row there were 4 in each row what would your answers to (a), (b), (c) and (d) be now?

**END OF EXAMINATION**