Name:

OUNDLE
School

2018 Junior Entrance Examination
First Form Entry

# Mathematics

Time Allowed: **60 minutes**

**Instructions**

- Calculators are ***not*** permitted.
- Write ALL your working and answers on this paper. Show enough working on each question to make it clear how you reached your answer.
- Do not spend too long working on any particular question. Do not worry if you do not manage to complete every question.
- You may work in pen or pencil.

**Question 1**

(a) John wanted to buy a boat.
Boat A cost £34,567,300. Boat B cost £23,997,324.
Calculate the difference between the two prices.

Answer …… [1]

(b) Polly's bill in a shop came to £374.67.
Ellie's bill came to £263.21.
What was the total they spent altogether?

Answer …… [1]

(c) A box contains 37 chocolates. How many chocolates would there be in 26 boxes?

Answer …… [1]

(d) Seven computers cost £882. Find the cost of one computer.

Answer …… [1]

(e) 650 calculators need to be shipped in boxes. A maximum of 24 calculators fit in each box.
How many boxes are needed?

Answer …… [1]

**Question 2** Work out the following, obeying the correct order of operations.

(a) $-3 + 0$

Answer ..... [1]

(b) $0 \times 4$

Answer ..... [1]

(c) $4 - 3 \times 0$

Answer ..... [1]

(d) $8 + 0 \div 4$

Answer ..... [1]

(e) $-1 \times 4 + 3 \times 5$

Answer ..... [1]

(f) $7 - 7 \div 7 + 7$

Answer ..... [1]

**Question 3**

Insert brackets to make the following statements correct:

(a) $9 \times 5 \div 2 + 1 = 15$

(b) $3 \times 7 - 6 \times 4 - 3 = 15$

[2]

**Question 4**
A pile of food can feed 12 rabbits for 15 days.
For how long could the same pile of food feed 20 rabbits?

Answer …… [2]

**Question 5**
An iPhone used to cost £500. Since Brexit the price has increased by 22%.
How much does it cost now?

Answer …… [2]

**Question 6**
*a* and *b* are two *different, positive* whole numbers which make the following statement true

$$3a + 2b = 48$$

Find two possible pairs of numbers which make the statement above true.

First pair $a$ = …… $b$ = ……

Second pair $a$ = …… $b$ = ……
[2]

**Question 7**

The ratio of height to width on an old television screen is 3:4.
If the height of a television screen was 21cm, find the perimeter of the screen.

Answer …….. [2]

**Question 8**

Write down the missing number in each part.

(a) $23 \times ? = 690$

Answer ..... [1]

(b) $2.3 \times ? = 6\,900$

Answer ..... [1]

(c) $6\,900 \div ? = 23\,000$

Answer ..... [2]

**Question 9**

*In this question you may use the grid below to help you answer the questions.*

A straight line passes through the points (1, 2) and (6, 12).

(a) (i) The point (3, $a$) also lies on the line. Calculate the value of $a$.

Answer ……. [1]

(ii) The point (7, $b$) also lies on the line. Calculate the value of $b$.

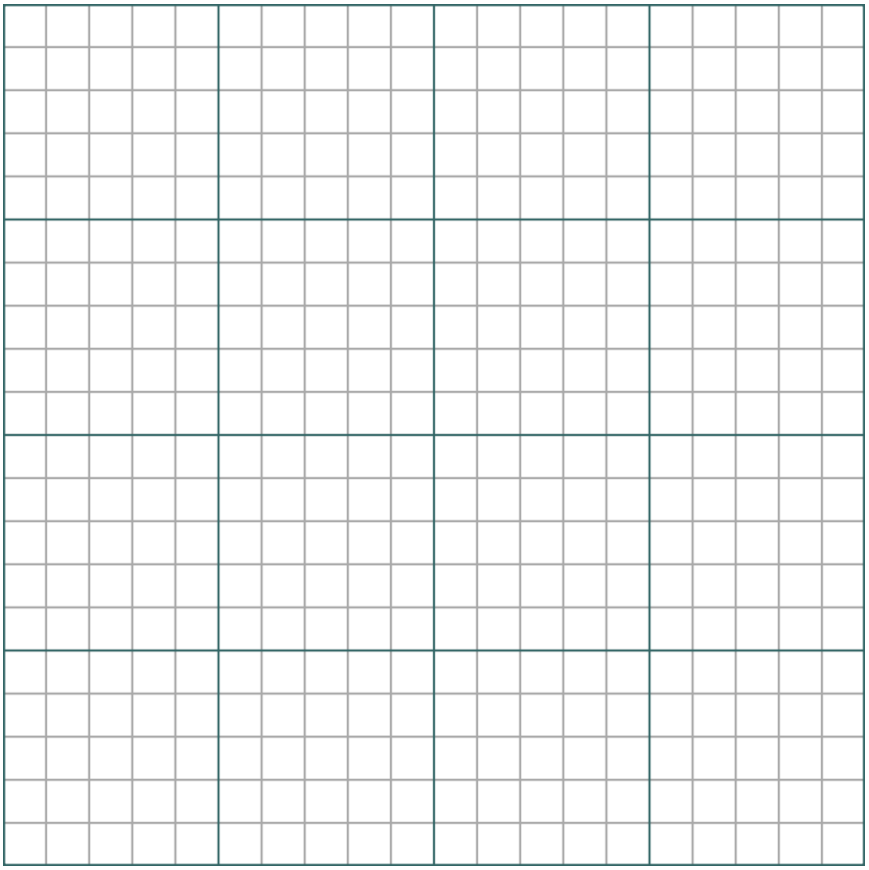
Answer ……. [1]

(iii) Give the coordinates of a new point which would form a right angled triangle with the original two points.

Answer ……. [1]

(b) Another straight line goes through the point (5, 1) and is *parallel* to the first line. Give the coordinates of any other point on this second line.

Answer ……. [1]



**Question 10**

When the fraction "one thirteenth" is written as a decimal, the first digit after the decimal point is 0, the second is 7 and the third is 6. If fifteen decimal places are calculated then we find:

$$1/13 = 0.076\ 923\ 076\ 923\ 076\ldots.$$

You will notice that after six decimal places the digits begin to repeat, and in fact *this pattern continues*.

(a) Write down the digits that are in the $4^{th}$ and $10^{th}$ decimal places.

$4^{th}$ digit: …… $10^{th}$ digit: …… [2]

(b) What number would you find in the $15^{th}$ decimal place?

…….. [1]

(c) What number would you find in the $2{,}000^{th}$ decimal place?

…….. [1]

(d) How many 7s appear in the first 200 decimal places?

…….. [1]

**Question 11**

You have the numbers −2, 7, 5 and –13 available.
Any of these numbers can be used in each part of the question.

(a) What is the highest number that can be obtained by adding two of the above numbers?

Answer: …… [1]

(b) What is the lowest number that can be obtained by adding two of the above numbers?

Answer: …… [1]

(c) What is the highest number that can be obtained by subtracting two of the above numbers?

Answer: …… [1]

(d) What is the lowest number that can be obtained by multiplying two of the above numbers?

Answer: …… [1]

**Question 12**

This question is about fractions.

(a) Which fraction is bigger, four fifths or eight ninths?

Answer ……. [1]

(b) Write down a fraction which is greater than two fifths, but less than four fifths.

Answer ……. [1]

(c) Write down a fraction that is greater than three fifths, but less than four fifths.

Answer ……. [1]

(d) Write down a fraction which is less than one seventh, but greater than zero.

Answer ……. [1]

(e) Calculate half of one sixth.

Answer ……. [1]

(f) What is the result if one is subtracted from three fifths?

Answer ……. [1]