Name:

OUNDLE
School

2017 Junior Entrance Examination
First Form Entry

Mathematics

Time Allowed: 60 minutes

Instructions

- Attempt all questions.
- All working and answers must be shown on this paper. Marks will be given for demonstrating your method.
- You may work in pen or pencil
- Calculators are ***NOT*** permitted.

Question 1

(a) At the start of January there were 2,349,290,978 Facebook users in the world. By the end of January 28,863,298 users had joined Facebook.
Calculate how many users there were at the end of January (assume no-one left Facebook).

Answer .....

(b) In 2014 £45,422,000,762 was spent on video games. In 2015 £79,584,354 *less* was spent on video games.
Calculate the spend on video games in 2015.

Answer .....

(c) A box contains 83 apples. How many apples would there be in 46 boxes?

Answer .....

(d) Five Xbox One consoles cost £683.75. Find the cost of one console.

Answer .....

(e) 4023 pumpkins need to be shipped by crate. A maximum of 26 pumpkins fit in each crate.
Find the minimum number of crates needed.

Answer .....

(g) Work out 3 243 + 47 643 – 1 243.

Answer .....

Question 2

(a) Work out $6 + 7 - 9 + 3 - 12 - 2$

Answer .....

(b) Work out $9 + 11 \times 3 - 12 \div 4$

Answer .....

Question 3

Insert brackets to make the following statements correct:

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

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

Question 4

A pile of hay can feed 12 horses for 15 days.
For how long could the same pile of hay feed 20 horses?

Answer .....

Question 5

An iPad used to cost £330. Since Brexit the price has increased by 22%.
How much does it cost now?

Answer .....

Question 6

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

$$4a + 3b = 48$$

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

First pair $a =$ …… $b =$ ……

Second pair $a =$ …… $b =$ ……

Question 7

x and y are positive whole numbers. The ratio of x to y is 7:3. The difference between x and y is 24.
Find the value of x and the value of y.

$x =$ …… $y =$ ……

Question 8

This question is about fractions.

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

Answer …….

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

Answer …….

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

Answer …….

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

Answer …….

(e) Calculate half of one sixth.

Answer …….

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

Answer …….

Question 9

A large sack holds 20% more potatoes than a small sack. If one large sack and one small sack together contain 77 potatoes, how many potatoes does each sack hold?

Small Sack ……

Large Sack ……

Question 10

You have the numbers −7, 8, 4 and –3.5 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: ……

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

Answer: ……

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

Answer: ……

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

Answer: ……

Question 11

Write down the missing number in each part.

(a) $37 \times ? = 7\,400$

Answer .....

(b) $3.7 \times ? = 7\,400$

Answer .....

(c) $7\,400 \div ? = 37\,000$

Answer .....

Question 12

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

A straight line passes through the points (2, 3) and (6, 11).

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

Answer …….

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

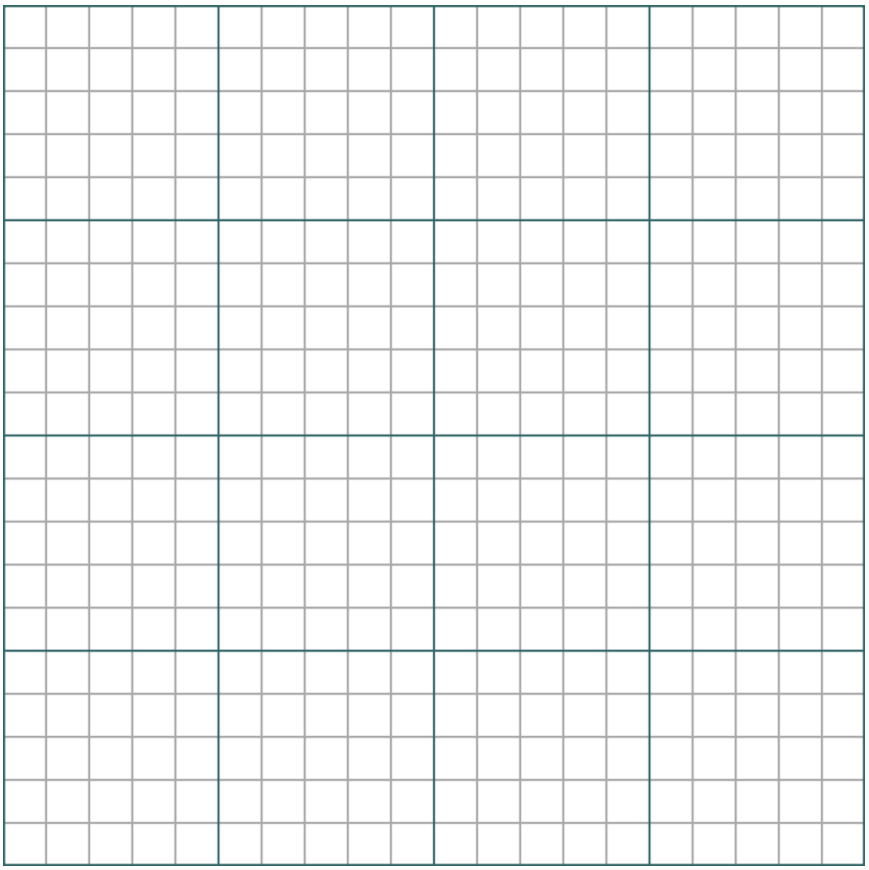
Answer …….

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

Answer …….

(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.

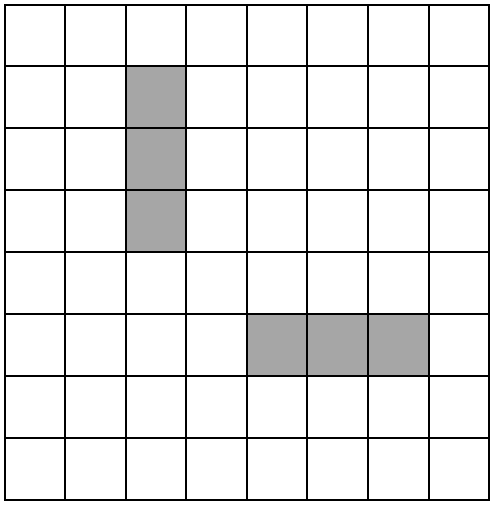
Answer …….



Question 13

On the diagram below, shade some white squares until the shape has

- no lines of symmetry
- rotational symmetry of order 2



Question 14

When the fraction "one seventh" is written as a decimal, the first digit after the decimal point is 1, the second is 4 and the third is 2. If fifteen decimal places are calculated then we find:

$$1/7 = 0.142\ 857\ 142\ 857\ 142\ 857\ 142\ldots.$$

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: ……

(b) What number would you find in the 30^{th} decimal place?

……..

(c) What number would you find in the $6{,}000^{th}$ decimal place?

……..

(d) How many 5s appear in the first 100 decimal places?

……..