Name:

OUNDLE
School

2021 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.
- 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.
- Calculators are **NOT** permitted.

Question 1

(a) Alice worked out the price of her regular weekly shop at two different supermarkets.
At supermarket A her weekly shop would cost £224.04 and at supermarket B it would cost £187.19.
How much would Alice save each week if she shopped at supermarket B.

Answer ………………………… [1]

(b) Benjamin spent £152.87 on some tropical fish.
Charlie paid £239.49 for a fish tank.
What was the total they spent altogether?

Answer ………………………… [1]

(c) Some bread rolls are sold in packs of 24. How many bread rolls are there in 37 packs?

Answer ………………………… [1]

(d) Denise buys 8 guitars at total cost of £3405.60. Find the cost of one guitar.

Answer ………………………… [1]

(e) 700 textbooks need to be shipped in boxes. A maximum of 15 textbooks fit in each box.
How many boxes are needed?

Answer ………………………… [1]

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

(a) $-5 + 0$

Answer …………………………… [1]

(b) 0×8

Answer …………………………… [1]

(c) $9 - 7 \times 0$

Answer …………………………… [1]

(d) $15 + 0 \div 3$

Answer …………………………… [1]

(e) $-2 \times 6 + 9 \times 3$

Answer …………………………… [1]

(f) $3 - 3 \div 3 + 3$

Answer …………………………… [1]

Question 3

Insert brackets to make the following statements correct:

(a) $8 \times 4 \div 3 - 1 = 16$

(b) $3 \times 5 - 6 \times 2 - 2 = 16$

[2]

Question 4

A wall can be built by 6 bricklayers in 4 days.
How long would it take 8 bricklayers to build 3 similar walls?

Answer ………………………… [2]

Question 5

The value of a vase increases from £24,000 to £27,000.
What percentage increase does this represent?

Answer ………………………… [2]

Question 6

m and n are two *different, positive* whole numbers which make the following statement true

$$5m + 3n = 90$$

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

First pair m = ………… n = ……………

Second pair m = ………… n = ……………

[2]

Question 7

The ratio of height to width on a cinema screen is 9:16.
If the cinema screen is 21 feet wider than it is tall, find the perimeter of the screen.

Answer ………………………….. [2]

Question 8

Given that $123 \times 45 = 5535$, write down the missing number in each part.

(a) $123 \times ? = 553.5$

Answer .... [1]

(b) $12.3 \times ? = 55350$

Answer .... [1]

(c) $55.35 \div ? = 1230$

Answer .... [2]

5

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, 1) and (4, 10).

(a) (i) The point (5, *a*) also lies on the line. Calculate the value of *a*.
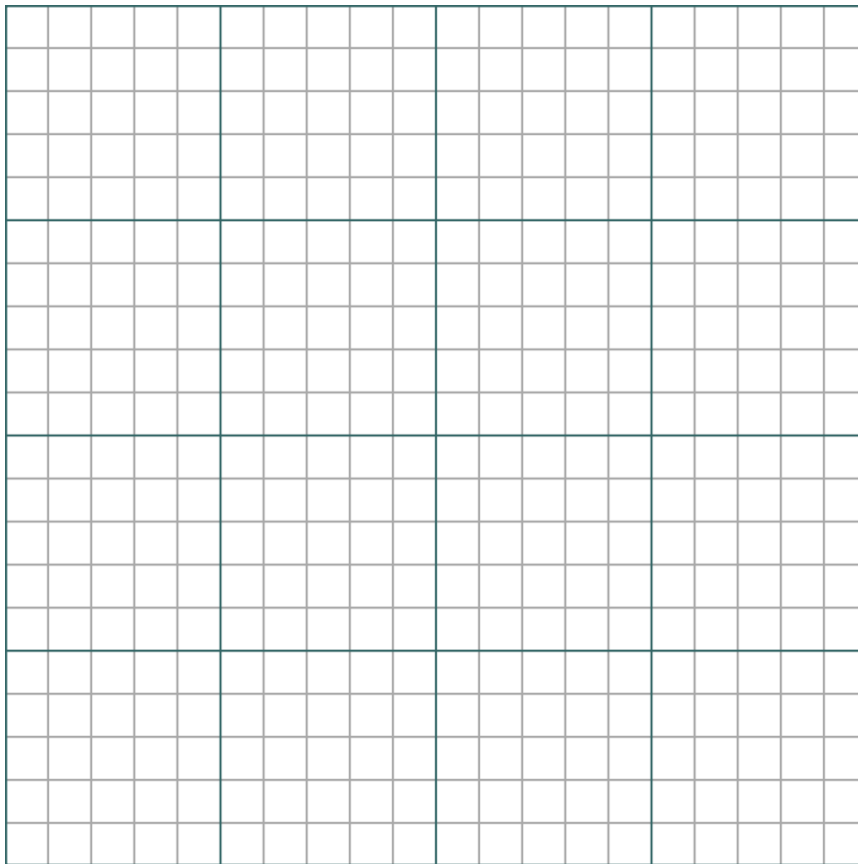
Answer ……………. [1]

(ii) The point (*b*, 19) also lies on the line. Calculate the value of *b*.

Answer ……………. [1]

(b) Another straight line goes through the point (4, 10) and is *perpendicular* to the first line. Give the coordinates of any other point on this second line.

Answer ……………. [2]

Question 10

You have the numbers −5, 4, 9 and –8 available.
Any of these numbers can be used in each part of the question.

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

Answer: ………………… [1]

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

Answer: ………………… [1]

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

Answer: ………………… [1]

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

Answer: ………………… [1]

Question 11

(a) Which fraction is bigger, $\frac{3}{5}$ or $\frac{7}{9}$?

Answer ……………. [1]

(b) Write down a fraction which is greater than $\frac{3}{13}$, but less than $\frac{4}{13}$.

Answer ……………. [1]

(c) Write down a fraction that is greater than $\frac{1}{7}$, but less than $\frac{1}{5}$.

Answer ……………. [1]

(d) Calculate a quarter of $\frac{1}{5}$.

Answer ……………. [1]

(e) What is the result if one is subtracted from $\frac{3}{4}$?

Answer ……………. [1]

7

Question 12

The symbol ⑨ represents a mathematical operation which finds the value of the product of two positive whole numbers minus their sum:

ie. $5 ⑨ 7 = 5 \times 7 - (5 + 7)$
$= 35 - 12$
$= 23$

For each part, write down the missing value

(a) $8 ⑨ 4 = ?$

Answer ……………. [1]

(b) $5 ⑨ ? = 7$

Answer ……………. [2]

(c) $? ⑨ 6 = 44$

Answer ……………. [2]

**No marks will be awarded for the remaining parts of this question,
and they should only be attempted if you have completed the rest of the paper.**

(d) Find a pair of positive whole numbers, a and b, for which:

(i) $a ⑨ b = 1$

Answer …………….

(ii) $a ⑨ b = 0$

Answer …………….

(iii) $a ⑨ b = -1$

Answer …………….

(e) For part (d)(iii) above, there are many other solutions. Describe all the solutions and try to explain/justify your answer.