Name:

2015 Non Common Entrance Examinations
Third Form Entry

Mathematics

Time Allowed: 1 hour

No calculators allowed

Instructions

- 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.

1. Work out the following

(a) 19.76 + 24.57

Answer ……

(b) 56 × 69

Answer ……

(c) 42700 × 1.7

Answer ……

(d) 0.96 × 0.043

Answer ……

(e) 2312.5 ÷ 5

Answer ……

(f) 26 + 9 ÷ 2 – 6 × 9

Answer ……

(g) 43% of 113

Answer ……

2. Work out

(a) $\frac{3}{5}+\frac{7}{12}$

Answer ……

(b) $4\frac{1}{3} \div 3\frac{4}{9}$

Answer ……

3. If $a = 9$, $b = -8$ and $c = -7$, find the value of the following expressions

(a) ab

Answer ……

(b) b^2

Answer ……

(c) $4a - b + 2c$

Answer ……

4. Find the value of x in the following equations

(a) $3x + 19 = 193$

Answer ……

(b) $5x – 3(x - 2) = 17$

Answer ……

(c) $3x^2 + 76 = 151$

Answer ……

(d) $0.58x + 1.42 = 1.08x$

Answer ……

5. In a large box of chocolates, for every five milk chocolates, there are nine dark chocolates and three white chocolates.
If there are twenty one white chocolates in the box, how many chocolates are there in total?

Answer ……

6. (a) In July the amount of rain (measured to the nearest mm) that fell on each day was recorded as below.
What was the total amount of rain that fell in July?

Amount of Rain	Number of Days
0 mm	8
1 mm	3
2 mm	2
3 mm	4
4 mm	0
5 mm	6
6 mm	8

Answer ……

(b) Find five numbers that have a mean of 5, a median of 5 and a mode of 5.

Answer ……

7. The Severn Bridge has carried just over 300 million vehicles since it was opened in 1966.
On average, roughly how many vehicles is this per day?

Answer ……

8. Place the numbers 5, 6, 7 and 8 in the gaps below to make the statements true.
Each number should be used *once* only in each part.

(a)

…… + …… × …… − …… = 41

(b)

…… + …… × …… − …… = 39

9. "Goldbach's Conjecture" says that every even number greater than 2 can be expressed as the sum of two primes.

Find two primes that add to give the following numbers

(a) 8

Answer ……

(b) 12

Answer ……

(c) 26

Answer ……

(d) What is the smallest number that can be written as the sum of two primes in *three different ways?*

Answer ……

10. 35241 is a number which contains the digits from one to six, each appearing once, with no other digits.

(a) What is the smallest and largest number with this same property?

Answer ……

(b) How many even numbers exist with this same property?

Answer ……

(c) How many numbers less than 30 000 have the same property?

Answer ……