



FOREST SCHOOL

13+

ENTRANCE AND SCHOLARSHIP

SAMPLE PAPERS

Sample Paper 1

Candidate Number: _____

Forest School
13+ Mathematics

Non-Calculator



TIME ALLOWED = 1 hour

INSTRUCTIONS

- **You should show your working to justify your answers.**
- **You have 1 hour to complete all the questions.**
- **Write all your answers and working in the space provided on this question paper.**
- **Check your working carefully.**
- **Calculators are NOT allowed.**

1. Calculate the following:

(a) $9784 + 8367$

(b) 576×18

Answer.....

Answer.....

(c) $121815 \div 9$

(d) 0.14^2

Answer.....

Answer.....

(e) The number halfway between
3.4 and 4.1

Answer.....

2. Calculate the following:

(a) $(-2)^3 = \dots\dots\dots$

(b) $-5 \times -5 = \dots\dots\dots$

(c) $-15 + 6 = \dots\dots\dots$

(d) $-18 \div 3 = \dots\dots\dots$

3. If $x = -2$, $y = 3$ and $z = -6$ calculate the following:

(a) $x - y \times z$

(b) $2y^2$

Answer.....

Answer.....

4. (i) Expand and simplify

(a) $3(2x + 4y) + 5(6x - y)$

(b) $3xy^2(2x + 5y)$

Answer.....

(ii) Factorise these expressions as far as possible

(a) $2x + 10y$

(b) $10x^3y^2 + 4x^2y$

Answer.....

Answer.....

Answer.....

5. When my father was 31, I was 8.
Now he is twice as old as me.
How old am I now?

Answer.....

6. Calculate, **giving your answer in simplest form:**

(i) $\frac{5}{7} + \frac{3}{4}$

(ii) $\frac{5}{7} \div \frac{10}{21}$

(iii) $16\frac{2}{3} - 12\frac{3}{4}$

(iv) $1\frac{2}{3} \times 2\frac{3}{4}$

7. (a) Karthegan scores 14 out of 40 in a test. What % is this?

Answer.....%

(b) Increase £42 by 10%.

Answer.....

(c) What is the percentage increase from £56 to £63?

Answer.....%

8. (i) What are the mean, median, mode and range of these numbers? 2,3,3,4,2,1,2,7
- (ii) Three different prime numbers have a mean of 10 and a median greater than 10. What are the numbers?
- (iii) Class A and Class B both took the same maths test. The mean of Class A was 50% and the mean of Class B was 80%.
Sophia said: "Everyone in Class B did better than everyone in Class A in the test."
Do you agree? Explain your reasoning clearly.

9. The probability that it rains on a day in April in Nodnol is 0.2

(i) What is the probability it doesn't rain?

Answer.....

(ii) How many days in April would you expect it to rain? (There are 30 days in April)

Answer.....

(iii) In 3 consecutive days in April it could rain, not rain, rain. We can write this **RNR**.

List all the different possibilities for 3 days in this way and so find the probability it rains on exactly one of the days.

Answer.....

10. In a group of children the ratio of boys to girls is 3:5.

(i) If there are 72 children in all, how many boys are there?

Answer.....

(ii) On a fruit stall the ratio of apples to bananas is 4:5 and the ratio of bananas to plums is 2:7. What is the ratio of apples to plums?

Answer.....

11. In this question use the following exchange rates.

£1 = \$ 1.20

1 Euro = 85p

(a) Is £1 worth more or less than 1.1 Euros? You must justify your answer clearly.

(b) What is £1.70 in dollars?

Answer.....

12. S is the sum of all the even numbers from 2 to 1000 inclusive.

T is the sum of all the odd numbers from 1 to 999 inclusive.

What is $S - T$? Show your working clearly.

Answer.....

- 13.** Alex throws 2 ordinary dice and adds the scores.
Grace throws 1 dice and doubles the score on the dice.

Who is more likely to score 10 or more?
Explain your reasoning clearly.

- 14.** You are given that $24 \times 36 = 864$. Use this to write down the answers to these:

(i) $12 \times 72 = \dots\dots\dots$

(ii) $2.4 \times 36000 = \dots\dots\dots$

(iii) $864 \div 0.36 = \dots\dots\dots$

15. In this regular octagon calculate the angles x , y and z .

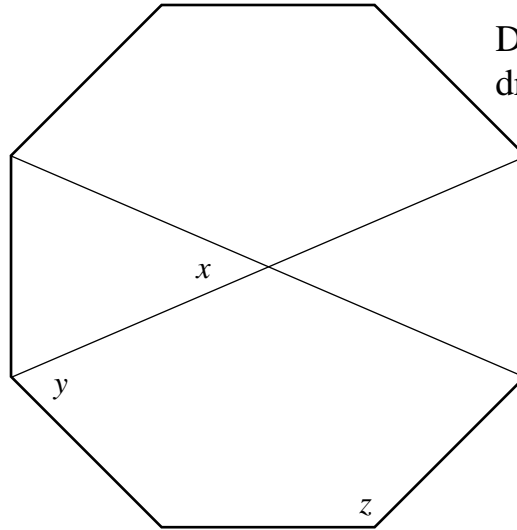


Diagram **not**
drawn to scale

Answer: $x = \dots\dots\dots$

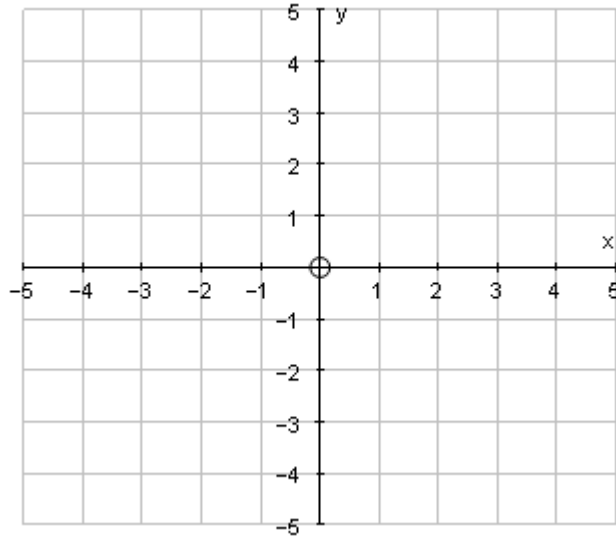
$y = \dots\dots\dots$

$z = \dots\dots\dots$

16. If 3 chickens lay 3 eggs in 3 minutes, how many eggs would 9 chickens lay in 9 minutes, laying eggs at the same rate?

Answer: $\dots\dots\dots$

17. On these axes mark clearly the points A (2,3), B (2,-4) and C (-3,-2)



(i) What is the equation of the line AB?

Answer.....

(ii) What is the area of the triangle ABC?

Answer.....

(iii) The point D fits on the diagram above and ABCD is a parallelogram. What are the coordinates of D?

Answer.....

18. The middle section of a magazine has been removed to reveal pages 34 and 87.

Page 34	Page 87
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- (i) If the above sheet containing pages 34 and 87 was removed, which pages would you then see?

Page	Page
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- (ii) How many pages does the magazine have in total?

Answer.....

END OF EXAMINATION

CHECK THROUGH ALL YOUR ANSWERS CAREFULLY