



# Brentwood School

Scholarship and Entrance Examination in

## **MATHEMATICS**

Sample Paper

**Time allowed: 1 hour**

This paper has two Sections, A & B

Each Section counts for 50 marks

It is suggested that you spend about 30 minutes on Section A  
and 30 minutes on Section B

Name: .....

- WRITE YOUR NAME ON THE DOTTED LINE ABOVE.
- Do not open this booklet until you are told to do so.
- Work as quickly and as carefully as you can.
- If you cannot do one of the questions, go on to the next. You can come back to it later if you have time.
- Show your working in the spaces provided, and put your final answers on the dotted lines.
- You are NOT allowed to use a calculator in this examination.

# Section A

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- ① Write down the number three hundred and fifty eight thousand nine hundred and three in figures.

.....  
(1 mark)

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- ② Write down 45%

(a) As a decimal

(b) As a fraction in its lowest terms

.....  
.....  
(2 marks)

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- ③ Here is a list of numbers

1.2, 1.02, 1.202, 1.22, 1.022

Which is

(a) The largest number?

(b) The smallest number?

.....  
.....

These are actually lengths of eyelashes in cm.

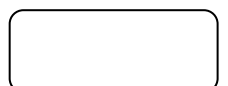
(c) What is the range of eyelash lengths?

(d) What is the median eyelash length?



.....  
(4 marks)

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4 You are given two numbers 0.35 and  $\frac{5}{8}$

(a) Convert 0.35 into a fraction and simplify fully

.....

(b) Find the sum of these two numbers, write the answer as a fraction in its simplest form

.....

(c) Find the product of these two numbers, write the answer as a fraction in its simplest form

.....

(5 mark)

---

5 The lengths of four of the *Henry Potter* films are as follows:

*Henry Potter and the Philosopher's Loan* 143 minutes

*Henry Potter and the Prisoner of Azkaban* 158 minutes

*Henry Potter and the Half Blood Prince* 144 minutes

*Henry Potter and the Deathly Hallows* 135 minutes

Find the *total* length of all four films, giving your answer in hours and minutes.



..... hours ..... minutes

(3 marks)





⑥ Three pupils had an average weight of 35kg.

(a) What is the *total* weight of these three pupils?

..... kg

A fourth pupil, weighing 55kg, joins them.

(b) What is the average weight of this group of *four* pupils?

..... kg

(4 marks)

---

⑦ Work out the following subtraction, giving your final answer as a mixed number in its lowest terms:

$$3\frac{2}{7} - 1\frac{1}{3}$$

.....

(3 marks)



8 Write down the next two numbers in these sequences:

(a) 11, 17, 23, 29, 35, ....., .....

(b) 108, 100, 92, 84, 76, ....., .....

(c) 4, 7, 12, 19, 28, ....., .....

(6 marks)

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9 (a) What is the largest number that will divide into both 12 and 18?

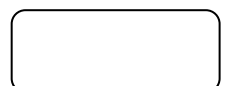
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(c) Find the smallest number into which 12 and 18 will both divide.

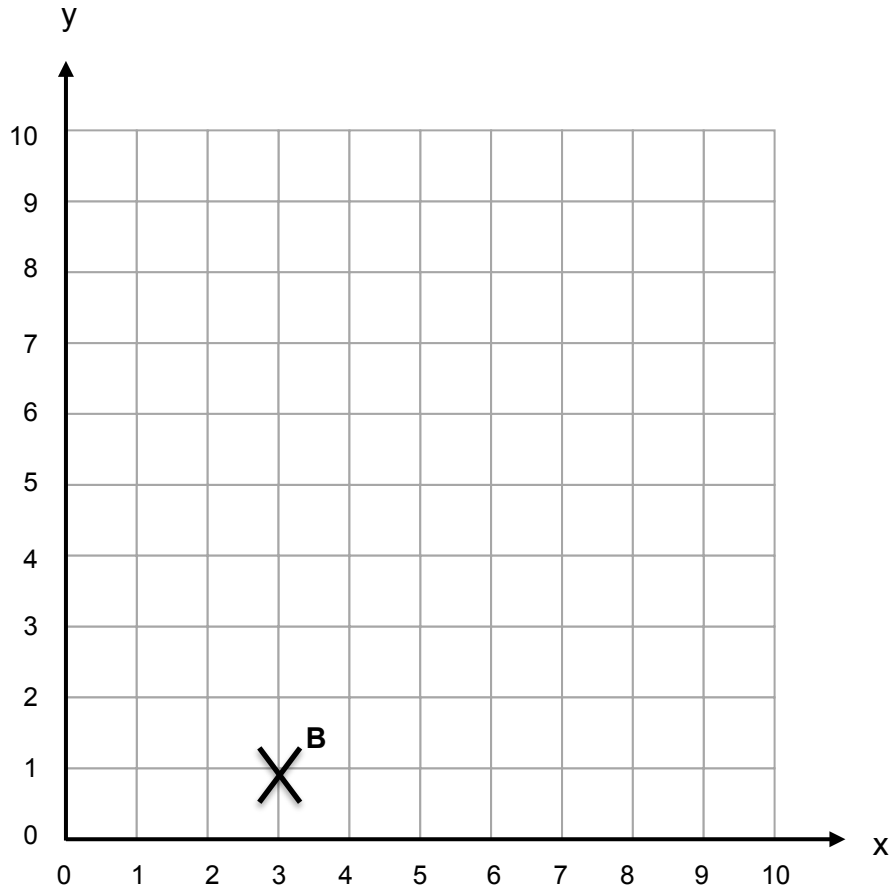
.....

(4 marks)

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10



(a) Write down the coordinates of point B.

.....

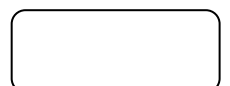
(b) Plot the point (1, 4) on the graph and label it A.

(c) Plot the point (5, 4) and label it C.

(d) Join points A, B and C to make a triangle.  
What type of triangle is triangle ABC?

.....

(4 marks)

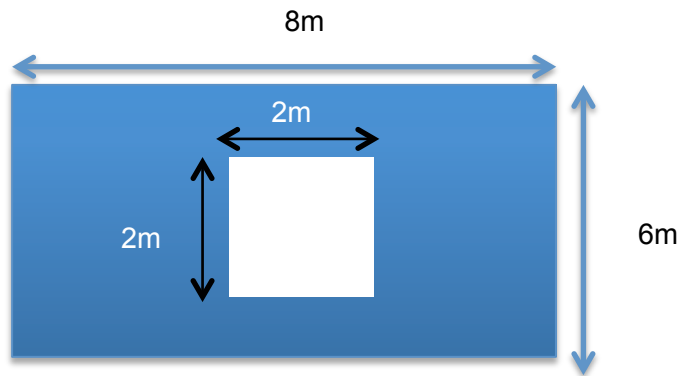


11 Calculate  $34.3 \div 0.7$

.....  
(2 marks)

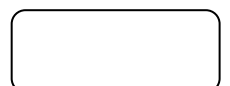
12

(a) Calculate the size of the area left when a square side length 2 metres is removed from the rectangle below



(b) What is the area of the biggest square that would fit completely inside the original rectangle?

.....  
(5 marks)



- 13 Gru and his minions have had a very busy Christmas period delivering presents on behalf of Santa. In order to speed things along he uses his minions to deliver the presents. Each minion can deliver 7 presents in an hour.



- (a) How many presents can one minion deliver in 3 hours?

.....

- (b) How many presents can four minions deliver in one hour?

.....

- (c) Dave the minion has been given 161 presents. How long would it take him to deliver these?

.....

- (d) At 1am on Christmas day there is still a total of 1820 presents to deliver. Gru has been given 5 hours to complete the deliveries. How many minions is he going to need?

.....

(7 marks)





## Section B

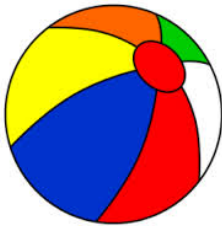
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- 1 4** Write the number ninety nine thousand ninety nine hundred and ninety nine in figures.

.....  
(2 marks)

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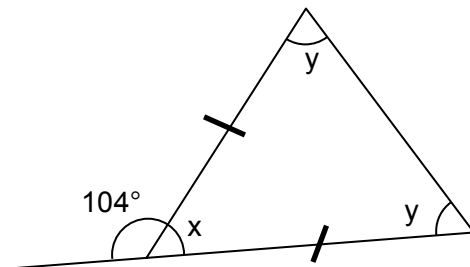
- 1 5** I roll a bouncy ball down the stairs. It bounces once after 2 steps, then again after double the number of steps. It carries on falling, bouncing after triple the number of steps it had bounced originally. At this point how many steps lower is the ball than where it started?



.....  
(2 marks)

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- 1 6** Find the sizes of angles  $x$  and  $y$ .

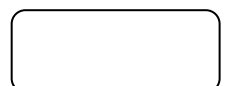


$x =$  .....

$y =$  .....

(3 marks)

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- 17 The day before yesterday my daughter was 10 years old. Next year she will be 13 years old. What is the date today?



.....  
(2 marks)

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18  $321 \times 57 = 18297$

Use the answers to the multiplication above to answer the following questions:

(a)  $18297 \div 57$

.....

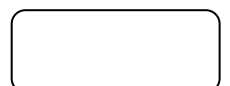
(b)  $570 \times 3210$

.....

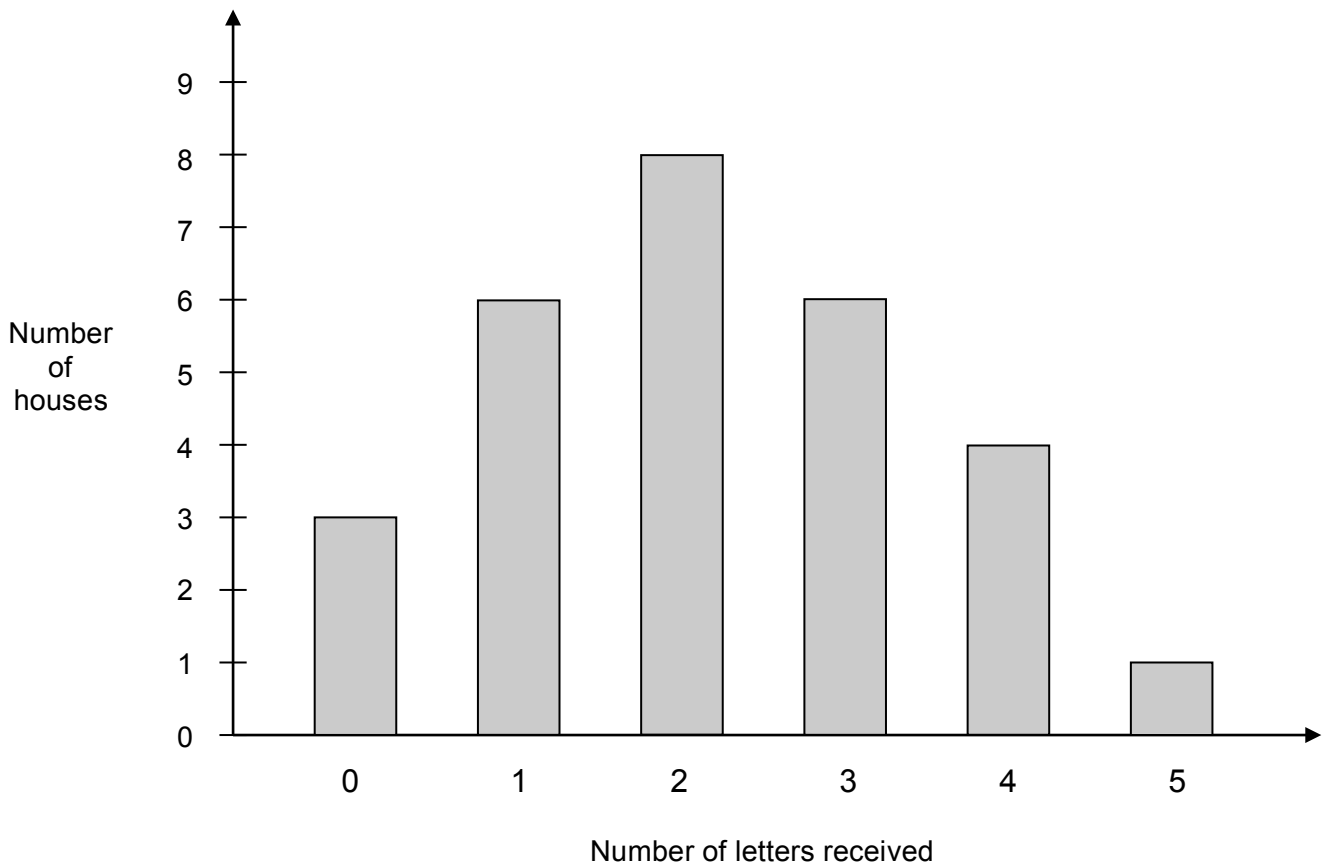
(c)  $642 \times 114$

.....  
(4 marks)

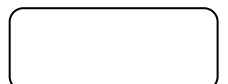
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- 19 One day, Postman Patrick recorded the number of houses which received no letters, one letter, two letters, and so on. This bar chart shows the results:



- (a) How many houses received just one letter?  
.....
- (b) What was the most common number of letters received?  
.....
- (c) How many houses received fewer than three letters?  
.....
- (d) What fraction of the houses received an odd number of letters?  
.....  
(5 marks)



- 20** Gryffindor house celebrated another Quidditch victory by playing a game of musical chairs. When the music stopped HERMIONE, HARRY, RON, GINNY, FRED and CHARLIE managed to sit down on the six available chairs.

Can you work out the order they sat in (left to right) from the information below?

- (a) HARRY sat between RON and CHARLIE
- (b) GINNY was to the right of FRED
- (c) Three people sat between HARRY and GINNY
- (d) HERMIONE sat next to CHARLIE



.....  
(3 marks)

- 
- 21** If the name KATHRYN is written over and over again like this:

KATHRYNKATHRYNKA...

- a) What is the 17<sup>th</sup> letter?

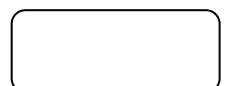
.....

- b) What is the 47<sup>th</sup> letter?

.....

- c) What is the 141<sup>st</sup> letter?

.....  
(3 marks)



- 22 Which is greater 90% of 10 % of 300 or 80% of 20% of 200? You must show calculations to explain your answer.

.....  
(2 marks)

- 
- 23 Starting with -1 give each letter of the alphabet a consecutive number with alternate signs.

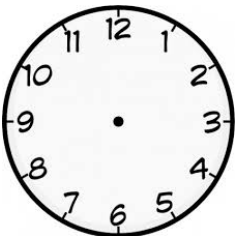
$$A = -1, B = 2, C = -3, \dots, Z = 26$$

- (a) My rabbit is called ANNA, what is the sum of the letters in her name?

- .....
- (b) My gerbil's name is  $\blacklozenge$ AE. If the sum of the letter in her name is  $-19$ , what is the missing letter?

.....  
(4 marks)

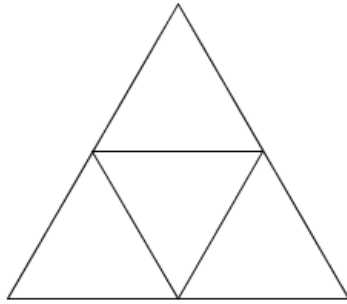
- 
- 24 Glancing at the reflection of Grandfather's clock in the mirror, Ameer went out when she thought it was half past ten and she returned when she thought it was quarter to nine on the same morning (!). How many minutes was she really out for?



.....  
(2 marks)



25 (a) How many triangles are there in this picture?



.....

(b) Individual triangles are to be painted BLUE or RED, so that no adjoining triangles have the same colour. In how many ways can this be done?

.....

(4 marks)

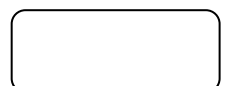
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26 Mr Rich decided to share his wealth among his children. Richie as the oldest got  $\frac{1}{3}$ , Thrifty the second oldest got a  $\frac{1}{3}$  of what was left, Bounty got  $\frac{1}{2}$  of what was left once Richie and Thrifty got their share. The dog, Archie, got the rest. If Mr Rich shared £9 million pounds, how much did Archie get?


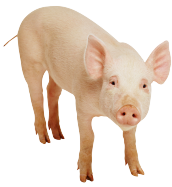


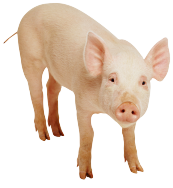








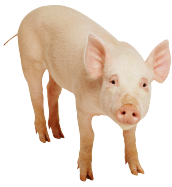




.....

(3 marks)



27 Study this picture carefully. The number at the end of each row or column is the sum of the values of the individual pictures.

				20
				
				14
				?
18		18		

(a) Which has a higher value, a chicken or a kitten?

.....

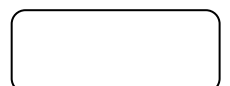
(b) What is the value of a chicken?

.....

(c) What is the value of the question mark?

.....

(3 mark)



2 3 The symbol  $\text{✋}$  placed between two numbers means “multiply together then add three”.

For example:  $3 \text{ ✋ } 5 = 3 \times 5 + 3 = 15 + 3 = \underline{18}$

(a) What is  $5 \text{ ✋ } 10$ ?

.....

(b) If  $x \text{ ✋ } 4 = 23$ , what number is  $x$ ?

.....

(c) If  $y \text{ ✋ } y = 39$ , what could  $y$  be?

.....

Another new mathematical symbol has also been invented.

$\text{‡}$  means “multiply together, unless the answer would be odd in which case *add* together instead”.

So  $3 \text{ ‡ } 4 = 12$  (because  $3 \times 4$  is even)

While  $5 \text{ ‡ } 7 = 12$  (because  $5 \times 7$  would be odd, so we add 5 and 7 instead!)

(d) What is  $2 \text{ ‡ } 8$  ?

.....

(e) What is  $11 \text{ ‡ } 7$  ?

.....

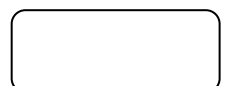
(f) If  $x \text{ ‡ } 2 = 30$ , what is the number  $x$ ?

.....

(g) If  $y \text{ ‡ } 3 = 24$ , there are two possible values of  $y$ . What are they?

..... and .....

(8 marks)





**THIS IS THE END OF THE EXAMINATION. IF YOU HAVE TIME, GO  
BACK AND CHECK YOUR ANSWERS CAREFULLY.**

