



FOUNDED 1900

**THE ENGLISH SCHOOL**  
A SECOND CENTURY OF EXCELLENCE

**THE ENGLISH SCHOOL**

**ENTRANCE EXAMINATIONS 2014**

MATHEMATICS

FIRST FORM

Time allowed: 1 hour and 30 minutes

- Answer ALL questions.
- Show all necessary working on the question paper in the spaces provided and write your answers in the appropriate places.
- The marks for each question are given at the end of the question.
- There are 30 questions in this paper.
- The total number of marks is 100.
- If you cannot do a particular question, move to the next question without losing time.
- **CALCULATORS ARE NOT ALLOWED.**
- **DO NOT WRITE IN THE RIGHT HAND MARGIN**

1. Evaluate the following:

(a)  $265 + 6321 + 29$

Answer: ..... (2)

(b)  $872 - 578$

Answer: ..... (2)

(c)  $654 \times 56$

Answer: ..... (2)

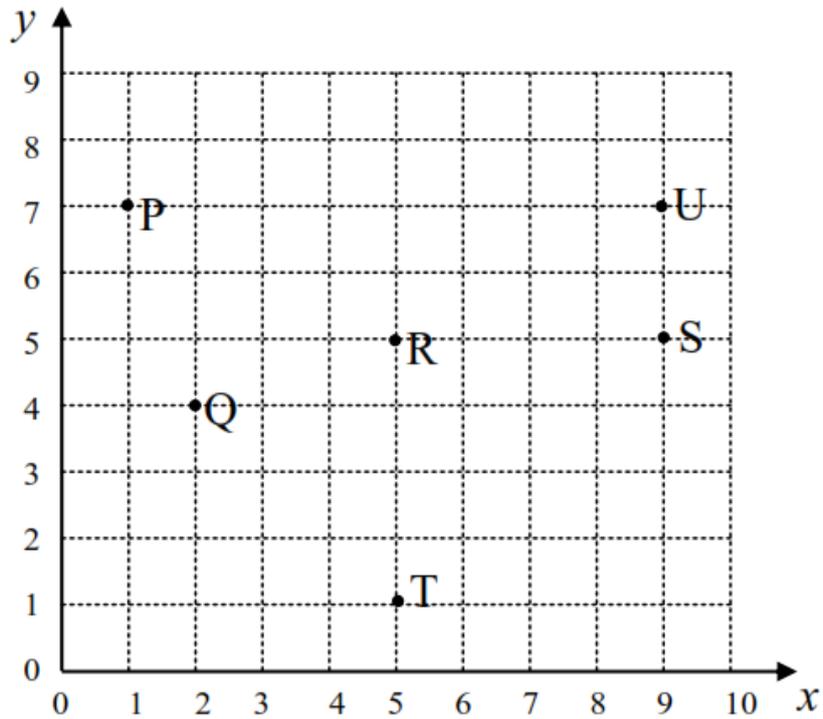
(d)  $55 - 5 \times 9 + 3$

Answer: ..... (2)  
( Total 8 marks )

Q1

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2. You are given a grid with some points on it.



- (a) T, R and S are three corners of a square.  
Write down the coordinates of the other corner.

Answer: ( ..... , ..... ) (1)

- (b) R, S and U are three corners of a rectangle.  
Write down the coordinates of the other corner.

Answer: ( ..... , ..... ) (1)

- (c) P, Q and R are three corners of another square.  
Write down the coordinates of the other corner.

Answer: ( ..... , ..... ) (1)

( Total 3 marks )

Q2

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3.

- (a) One cup can hold 250ml of water.  
If I wanted to fill a 6.5 litre jug, how many cups would I need?

Answer: ..... (2)

- (b) A child's heart beats 80 times per minute.  
How many times will it beat between 05:30 and 15:30 on the same day?

Answer: ..... (2)

- (c) Ashley measured the height of his garage door.  
It was 2.345 m tall.

Change 2.345 m to cm and write your answer rounded to the nearest ten.

Answer: .....cm (2)

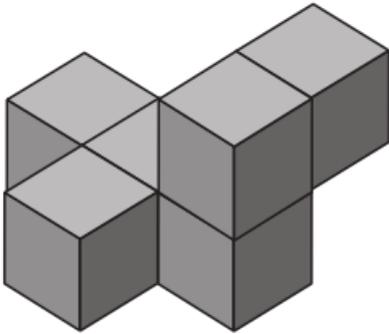
( Total 6 marks )

Q3

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Leave blank

4. Six cubes have been joined together to make the shape below. The area of each face of the cubes is  $1 \text{ cm}^2$ . If the shape is dipped into a large pot of paint, what is the total area which will be covered in paint?

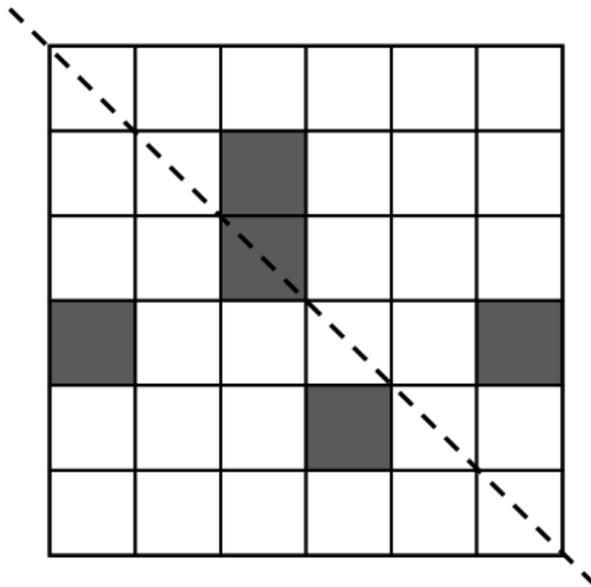


Answer: .....  $\text{cm}^2$  (2)

( Total 2 marks )

Q4

5. Shade the smallest number of squares required to make the dotted line shown a line of symmetry.

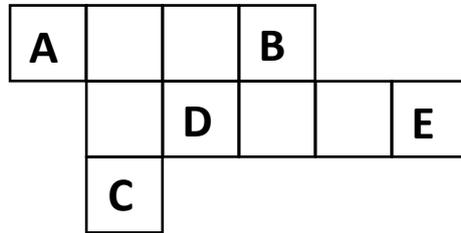


(2)

( Total 2 marks )

Q5

6. The diagram shows a shape made from ten square tiles. Which of the tiles labelled **A**, **B**, **C**, **D** and **E** can be removed without changing the perimeter of the shape?



Answer: ..... (2)

( Total 2 marks )

Q6

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7. (a) What is the smallest three digit positive number that can be divided by 2, 3, 4, 6 and 8 without a remainder?

Answer: ..... (2)

- (b) What is the largest four digit number that can be formed by using four different digits that add up to 18?

Answer: ..... (2)

( Total 4 marks )

Q7

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8. Rhys and Sarah are on their bicycles and start 45 kilometers apart on a road, riding towards each other. Rhys is travelling at 10 km/h and Sarah is travelling at 20 km/h. They set off at the same time and both keep moving at constant speeds until they meet.

(a) Work out what distance each rider has cycled by the time they meet.

Answer: Rhys : .....km  
 Sarah : .....km (2)

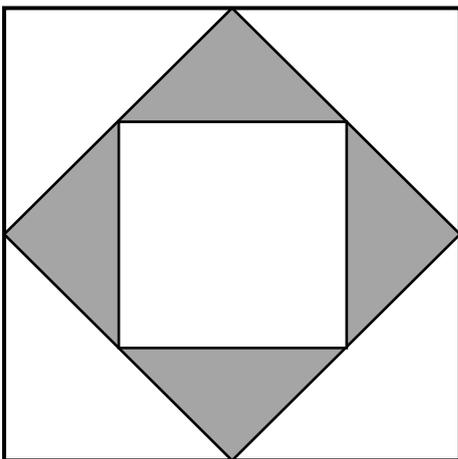
(b) Write down the time taken for them to meet.

Answer: ..... minutes (1)

( Total 3 marks )

Q8

9. The diagram below is made from three squares. The vertices of the inscribed square bisect the sides of the larger square. (*The diagram is not accurately drawn*)



Calculate the fraction of the larger square that is shaded, giving your answer in its lowest terms.

Answer: ..... (2)

( Total 2 marks )

Q9

10. A sunflower is one hundred and fifty centimetres tall.  
How tall will it be if its height increases by ten per cent?



Leave  
blank

Answer: ..... cm (2)

Q10

( Total 2 marks )

11. In a box of pens, one half are black, one sixth are red and the rest are blue.  
What fraction of the pens is blue?

Answer: ..... (2)

Q11

( Total 2 marks )

12. Bella makes purple paint by mixing blue paint and red paint in the ratio of 4 : 3.  
How much blue paint is needed to make 21 litres of purple paint?



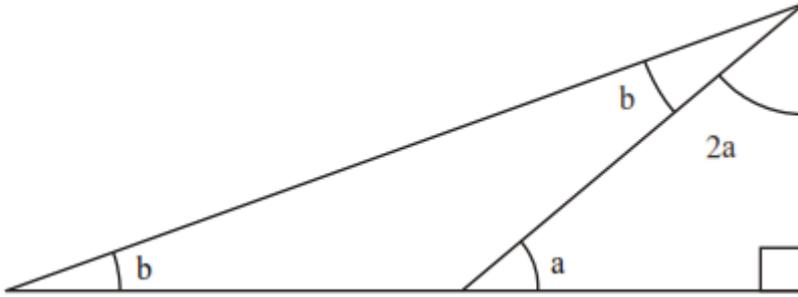
Answer: ..... litres (2)

Q12

( Total 2 marks )

Leave blank

13. In the triangle below work out the value of  $a$  and  $b$ . (The diagram is not accurately drawn)



$a = \dots\dots\dots^\circ$  (1)

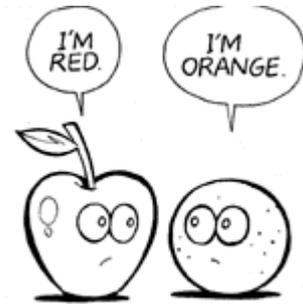
$b = \dots\dots\dots^\circ$  (2)

(Total 3 marks)

Q13

14. Three apples and one orange cost 97 cents.  
One apple and three oranges cost 91 cents.

(a) What is the cost of four apples and four oranges?



Answer: €  $\dots\dots\dots$  (1)

(b) What is the cost of one apple and one orange?

Answer: €  $\dots\dots\dots$  (1)

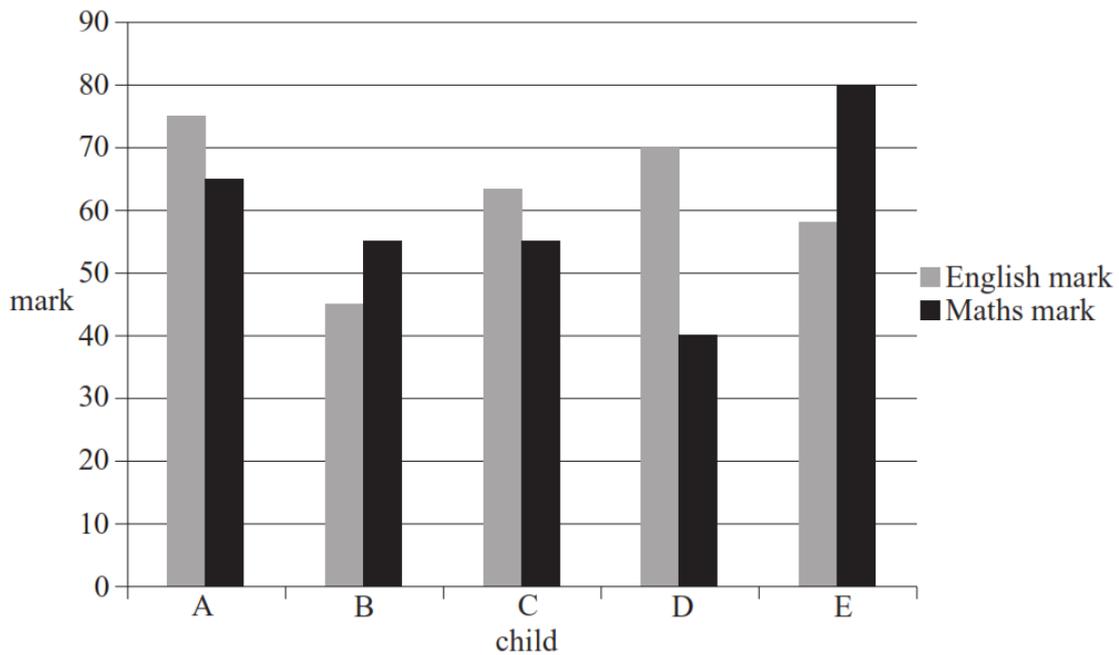
(c) What is the cost of one apple?

Answer: €  $\dots\dots\dots$  (2)

(Total 4 marks)

Q14

15. Five children took exams in English and Maths. Their names are Dolly, Holly, Lolly, Molly and Polly. The bar chart below shows their results.



Use the information below to work out which child is represented by each letter.

- Dolly came top in the Maths exam.
- In the English exam, it was Molly who scored the highest.
- Polly got the lowest total score.
- Holly scored 30 more marks in English than she did in Maths.

Dolly = .....

Holly = .....

Lolly = .....

Molly = .....

Polly = ..... (3)

Q15

( Total 3 marks )

16. Use the fact that  $17 \times 18 \times 19 = 5814$  to work out the value of  $34 \times 36 \times 38$ .

Leave blank

Answer: ..... (2)

( Total 2 marks )

Q16

17. Kyra parks her car at 10.30 am.  
She collects the car at 2.15 pm.  
How much does she have to pay?

car park charges	
time	charge
Upto 1 hour	80 cents
1 to 2 hours	€ 1.20
2 to 3 hours	€ 1.70
3 to 4 hours	€ 2.20
over 4 hours	€ 3.00

Answer: € ..... (2)

( Total 2 marks )

Q17

18. The symbols ♣, ●, ♠, ♥ and ♦ each stand for one of the numbers 1, 4, 5, 9 and 16.  
Given that the following statements are true, work out the value of each symbol.

$$\diamond \times \spadesuit = \diamond$$

$$\clubsuit \times \clubsuit = \bullet$$

$$\diamond + \clubsuit = \heartsuit$$

$$\spadesuit = \dots\dots$$

$$\heartsuit = \dots\dots$$

$$\diamond = \dots\dots$$

$$\clubsuit = \dots\dots$$

$$\bullet = \dots\dots \quad (3)$$

( Total 3 marks )

Q18

19. In order to save time banks weigh bags of coins instead of counting them. The masses in grams of some coins are shown below.



3 g



5.75 g



7.5 g

(a) If a bag of 2 cent coins weighs 360g, how many coins are there?

Answer: ..... (2)

(b) How much are 375 g of 1 euro coins worth?

Answer: € ..... (2)

(c) How many grams would €10 worth of 20 cent coins weigh?

Answer: ..... g (2)

( Total 6 marks )

Q19

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20. What are the dimensions of the rectangle whose

(a) perimeter is 48 cm and whose one side is one half of its other side?

Answer: ..... cm  $\times$  ..... cm (2)

(b) area is  $48 \text{ cm}^2$  and perimeter is 32 cm?

Answer: ..... cm  $\times$  ..... cm (2)

(c) area is  $72 \text{ cm}^2$  and its one side is double the other side?

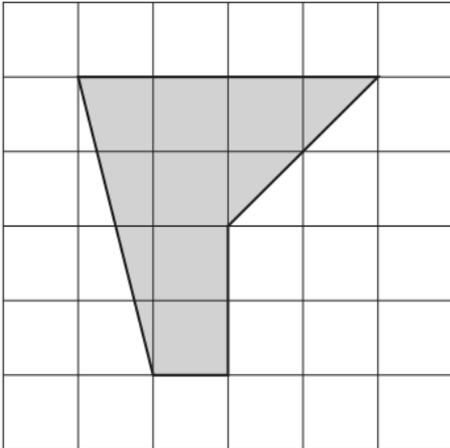
Answer: ..... cm  $\times$  ..... cm (2)

( Total 6 marks )

Q20

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21. Work out the area of the shape below, drawn on centimetre-squared paper.  
(The diagram is not accurately drawn)



Answer: .....  $\text{cm}^2$  (2)  
( Total 2 marks )

Q21

22. Mrs Fowler keeps chickens.  
The table shows how many eggs her chickens laid on each weekday last week.

Day	Number of eggs
Monday	4
Tuesday	?
Wednesday	4
Thursday	3
Friday	11



The average number of eggs laid from Monday to Friday last week was 6.  
How many eggs were laid on Tuesday?

Answer: ..... eggs (3)  
( Total 3 marks )

Q22

23.

(a) Which of the following numbers is closest in value to 1?

1.1, 0.988, 1.009, 0.99, 1.01

Answer: ..... (1)

(b) Arrange the following numbers from smallest to largest.

$\frac{1}{3}$ , 0.305, 35%,  $\frac{3}{10}$

....., ....., ....., ..... (2)

( Total 3 marks )

Q23

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24. Write down the next two terms in each of the sequences below:

(a) 60, 59, 57, 54, 50, ....., ..... (1)

(b) 1, 2, 6, 24, 120, ....., ..... (1)

( Total 2 marks )

Q24

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25. Here is the start of a pattern made with black hexagons and white hexagons:



pattern 1



pattern 2



pattern 3

- (a) Complete the table showing the numbers of black hexagons and white hexagons in each pattern. (2)

pattern number	1	2	3	4
number of black hexagons	2			
number of white hexagons	8			

- (b) How many black hexagons are there in pattern number 13?

Answer: ..... (1)

- (c) How many white hexagons are there in pattern 10?

Answer: ..... (1)

- (d) One pattern has 50 white hexagons.  
How many black hexagons are there in this pattern?

Answer: ..... (2)

( Total 6 marks )

Q25

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26.

(a) Write twelve fiftieths as a decimal.

Answer: ..... (2)

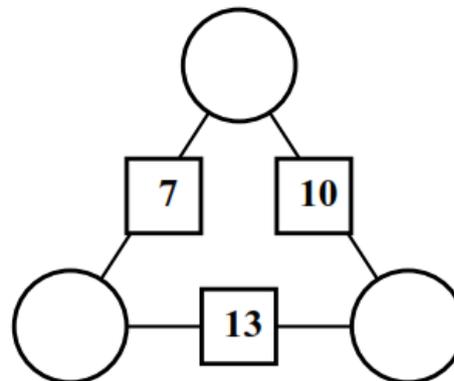
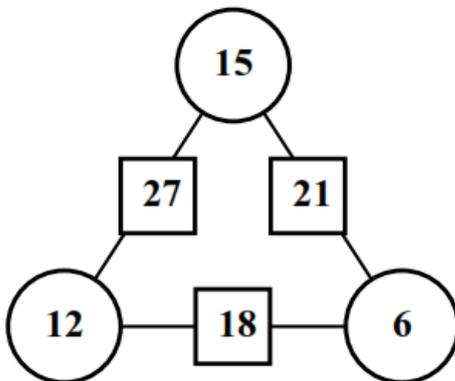
(b) Write one eighth as a percentage.

Answer: ..... (2)

( Total 4 marks )

Q26

27. In each diagram the numbers in any two circles add up to the number in the square between them. A completed example is given in the diagram on the left. Complete the diagram on the right.



(3)

( Total 3 marks )

Q27

28. Silvio has some number cards.

(a) He holds up a card. He says,

*'If I multiply the number on this card by 5 and then add 2, the answer is 47.'*

What is the number on the card?

Answer: ..... (2)

(b) He holds up a second card. He says,

*'If I divide the number on this card by 6 and then subtract 3, the answer is 5.'*

What is the number on the second card?

Answer: ..... (2)

(c) He holds up a third card. He says,

*'If I multiply the number on this card by itself, and then subtract the result from 100, the answer is 36.'*

What is the number on the third card?

Answer: ..... (2)

( Total 6 marks )

Q28

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Leave  
blank

29. A pizza is divided into 12 equal slices.  
Matthew eats  $\frac{1}{4}$  of the pizza and Katie eats another  $\frac{1}{6}$ .  
How many slices are left?



Answer: ..... (2)

( Total 2 marks )

Q29

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30. A number has 4 digits.  
Every digit is an odd number.  
None of the digits is a 9.  
Every digit in the number is different.  
The smallest digit is in the thousands place.  
The greatest digit is in the ones place.
- This describes two possible numbers.  
The mystery number is the greater of those two numbers.
- What is the mystery number?

Answer: ..... (2)

( Total 2 marks )

Q30

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**TOTAL FOR PAPER: 100 MARKS**

**END**