

11+ ENTRANCE EXAMINATION



SOLIHULL

SAMPLE PAPER

MATHEMATICS

INSTRUCTIONS FOR CANDIDATES

The paper is divided into Sections **A**, **B** and **C**.

Write your candidate number in the box provided at the beginning of each section.

Answer **all** the questions in Section **A** and as many as you can in Sections **B** and **C**. If you find a question hard, don't worry, leave it and move on to the next question. You can always come back to it later.

When you have finished one section go on to the next section straight away.

NO CALCULATORS MAY BE USED FOR ANY PART OF THIS EXAM

Candidate Number: _____

Section A

INFORMATION FOR CANDIDATES

Write your candidate number in the space provided at the top of this sheet.

There is no need to show any working in Section A, but you may use the space provided to do any calculations that you may wish to make.

In each question you should put your answer in the box provided. The mark for each question is shown in brackets.

Work out:

1. 5 8 5 9
 + 7 3 9 4

[1 mark]

2. 7 6 5
 – 3 8 9

[1 mark]

3.
$$\begin{array}{r} 674 \\ \times \quad 7 \\ \hline \end{array}$$

[1 mark]

4.
$$\begin{array}{r} 2536 \\ \div 4 \\ \hline \end{array}$$

[1 mark]

5. How many seconds are there in 8 minutes?

[1 mark]

6. All these fractions are the same:

$$\frac{2}{3} \quad \frac{10}{15} \quad \frac{60}{90} \quad \frac{x}{24} \quad \frac{50}{y}$$

(i) What is the value of x?

[1 mark]

(ii) What is the value of y?

[1 mark]

7. Here are some numbers

0.9 0.899 0.0999 0.909 0.09 0.9009

(i) Which is the smallest?

[1 mark]

(ii) Which is the largest?

[1 mark]

8. What is the next number in each of these sequences?

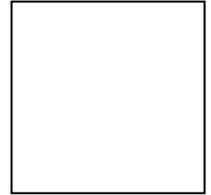
(i) 3, 9, 15, 21, 27, 33

[1 mark]

(ii) 2, 5, 10, 17, 26

[1 mark]

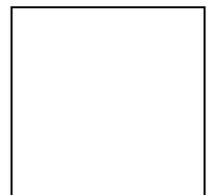
(iii) 1000, 900, 810, 730, 660



[1 mark]

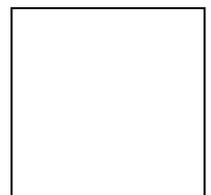
9. I think of a number. Multiply it by 6 and subtract 7 to get an answer.

(i) If I start with 12, what is my answer?



[1 mark]

(ii) If my answer is 41, what number did I start with?



[1 mark]

10. If you buy 8 second class stamps costing 44p each, how much change would you receive from £5.

[1 mark]

11. A train leaves Solihull at 6.35 am and arrives at Liverpool at 10.22 am.
How many minutes does it take?

[1 mark]

Candidate Number: _____

Section B

INFORMATION FOR CANDIDATES

Write your candidate number in the space provided at the top of this sheet.

Answer as many of the following questions as you can.

If a question seems difficult, leave it and go on to one of the other questions.

Present your working neatly in the spaces provided.

In each question you should put your answer in the box provided.

1. A hockey tournament has 32 teams competing, each with 11 players.

(i) How many players are there altogether?

[2 marks]

(ii) Each player brings along 8 supporters to the tournament. How many supporters are there altogether?

[2 marks]

- (iii) In total there were 128 matches played. There was an average of 5 goals scored per match. How many goals were scored in total?

[2 marks]

2. If you go on holiday to Canada and change your pounds into Canadian dollars, you receive dollars at the rate of 5 dollars for every 3 pounds.

- (i) Usman changes £240 into dollars at the beginning of his holiday. How many dollars does he receive?

[2 marks]

- (ii) He spends 150 dollars on a coat. How many pounds is this?

[1 mark]

(iii) He spends 55 dollars on a pair of training shoes. How many pounds is this?

[1 mark]

(iv) How many dollars does he have left?

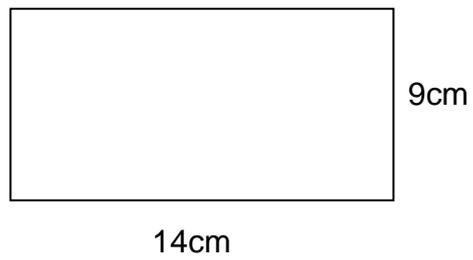
[1 mark]

(v) If these dollars are changed back into pounds, how many pounds does he receive?

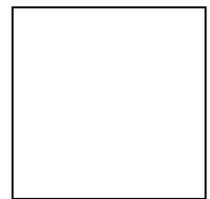
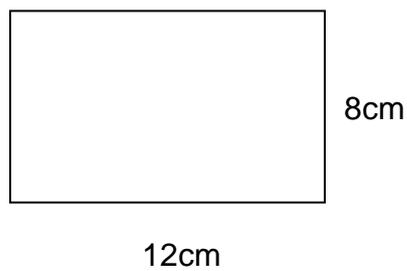
[1 mark]

3. In this question the shapes are NOT drawn to scale.

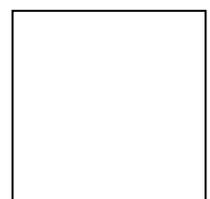
(i) Find the perimeter (the total length around the outside of the shape) of the rectangle below.



(ii) Find the area of the rectangle below.

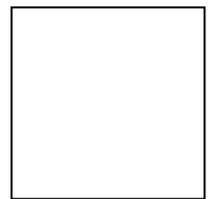
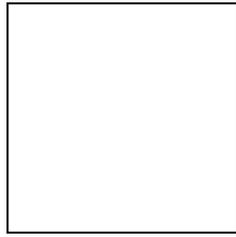


[1 mark]



[2 marks]

- (iii) A square has a perimeter of 36cm. Find its area.

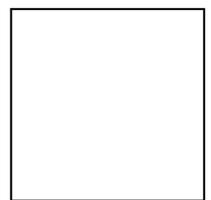


[2 marks]

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4. Meera gets in a muddle with her arithmetic.
When it says add she always takes away.
When it says take away she always adds.
When it says multiply she always divides.
When it says divide she always multiplies.

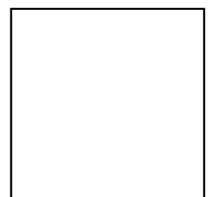
What does she give as the answer to:

- (i) $32 - 8$



[1 mark]

- (ii) 96×8



[1 mark]

- (iii) She works out $a \div 8$ and gives the answer as 72.
What is the value of a ?

[2 marks]

- (iv) She works out $c \div c$ as 144.
What is the value of c ?

[2 marks]

- (v) If she works out $b \times 4 + 4$ she gets 4.
What is the value of b ?

[2 marks]

5. Here is a sum with some signs missing

$$2 \ 3 \ 4 = 10$$

You can make it correct by putting in the correct signs:

$$2 \times 3 + 4 = 10$$

Fill in the gaps below to make the sums correct.

You may use any of the signs +, -, x, ÷ and you can use brackets if you wish.

(i) $8 \ 4 \ 2 = 34$

[2 marks]

(ii) $24 \ 2 \ 8 = 4$

[2 marks]

(iii) $32 \ 2 \ 40 \ 4 = 74$

[2 marks]

6. The rule $a * b$ means $a \times a + b \times b$

That is, you multiply the first number by itself, multiply the second number by itself and then add the answers together.

$$\begin{aligned} \text{For example, } 2 * 3 &= 2 \times 2 + 3 \times 3 \\ &= 4 + 9 = 13 \end{aligned}$$

$$\begin{aligned} \text{And } 1 * 2 &= 1 \times 1 + 2 \times 2 \\ &= 1 + 4 = 5 \end{aligned}$$

(i) Work out $2 * 10$

[2 marks]

(ii) Work out $2 * 2 + 3 * 3$

[2 marks]

(iii) $a * 1 = 65$. Work out the value of a .

[2 marks]

Section C

INFORMATION FOR CANDIDATES

Write your candidate number in the space provided at the top of this sheet.

Answer as many of the following questions as you can.

If a question seems difficult, leave it and go on to one of the other questions.

Present your working neatly in the spaces provided.

In each question you should put your answer in the box provided.

1. Some numbers read the same forwards and backwards, like **343** and **1221**. We call these numbers 'mirror numbers'.
- (i) Find all 'mirror numbers' between 10 and 100? Write your answers in the space below.

[3 marks]

- (ii) Find all the 'mirror numbers' between 100 and 200. Write your answers in the space below.

[3 marks]

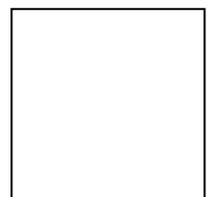
2. The three-digit number 452 has a digit sum of 11 because $4 + 5 + 2 = 11$.

The three-digit number 584 has a digit sum of 17 because $5 + 8 + 4 = 17$

Write down in the space below all three-digit numbers that have a digit sum equal to 25.

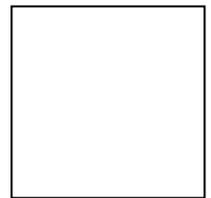
[3 marks]

3. There is a number of coins on a table. One quarter of them are showing heads. If I turn over two more coins to show heads then one third of the coins now show heads. How many coins are on the table?



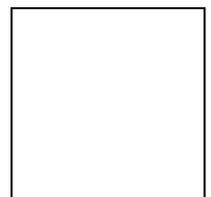
[4 marks]

4. I want to draw a square in which the perimeter (total length around the outside) is equal in size to the area.
- (i) What is the side length of the square?



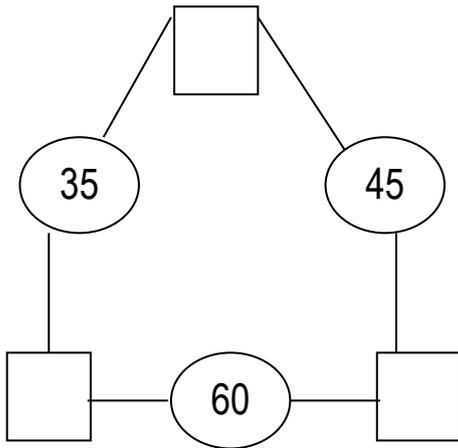
[3 marks]

- (ii) Now I want to draw a rectangle that is twice as long as it is wide. However, its perimeter is still equal in size to its area. What will the length of the rectangle be?



[3 marks]

5. Fill in the missing numbers so that adding each pair of corner numbers gives you the number between them (in the circles).



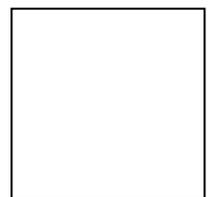
[3 marks]

-
6. In the multiplication $6 \times 2 = 3$ all the digits are correct, but they are in the wrong places. The sum should be $2 \times 3 = 6$ (or $3 \times 2 = 6$).

Another example is $3 \times 16 = 8$. This is wrong. It should be $3 \times 6 = 18$.

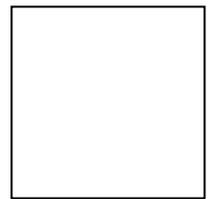
In the multiplications below the digits are also correct but in the wrong places. Write them again in the correct way:

- (i) $4 \times 8 = 2$



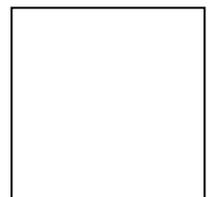
[2 marks]

(ii) $3 \times 1 = 42$



[2 marks]

(iii) $28 \times 1 = 44$



[2 marks]

7. Some of the digits are missing in the multiplications below. Find the missing digits and write out the multiplications in the answer box. You may use the same digit more than once.

(i)

$$\begin{array}{r} 6 * \\ * \\ \hline 3 * 4 \end{array} \times$$

[3 marks]

(ii)

$$\begin{array}{r} * 6 * \\ 7 \\ \hline * 1 * 3 \end{array} \times$$

[3 marks]