SURNAME ..... FIRST NAME .....

JUNIOR SCHOOL ..... SENIOR SCHOOL .....

ISEB

Independent Schools Examinations Board

COMMON ENTRANCE EXAMINATION AT 11+

MATHEMATICS

Monday 5 November 2018

Please read this information before the examination starts.

- This examination is 60 minutes long.
- Please try **all** the questions.
- Write your answers on the dotted lines.
- All working should be written on the paper.
- Tracing paper may be used.
- Calculators are not allowed.
- **Answers given as fractions should be reduced to their simplest form.**

1. Write down the answers to these questions.
(You may work them out in your head.)

(i) 58 + 59

Answer: ..... (1)

(ii) 2002 – 997

Answer: ..... (1)

(iii) 5 × 34

Answer: ..... (1)

(iv) 240 ÷ 6

Answer: ..... (1)

(v) half of five hundred and twenty-eight

Answer: ..... (1)

(vi) 7.05 × 1000

Answer: ..... (1)

(vii) 5 – 8

Answer: ..... (1)

(viii) 1256 ÷ 4

Answer: ..... (1)

2. A sequence of numbers starts

1 1 2 3 5 8 13 21 34 55 89

(i) Write down all of the prime numbers which appear in the sequence above.

Answer: ..... (2)

(ii) Write down all of the factors of 102 which appear in the sequence above.

Answer: ..... (2)

3. (i) Which year is written in Roman numerals as MDCCLX?

Answer: ..... (1)

(ii) Write the year 2009 in Roman numerals.

Answer: ..... (1)

4. George is going to London to visit a museum with the rest of his class.

(i) George meets the other children on the platform at 07:37
George gets on the train at 07:55

How long is George waiting on the platform?

Answer: ..... minutes (1)

(ii) The train leaves at 07:58
The journey to London takes 1 hour and 17 minutes.

At what time do the children arrive in London?

Answer: ..... (1)

5. There are a total of 36 children on the trip to London.

(i) There are 5 boys for every 4 girls on the trip.

How many girls are there on the trip?

Answer: ..... (2)

(ii) (a) It costs £3.50 for a child to enter the museum.

How much does it cost for all 36 children to enter the museum?

Answer: £ ..... (2)

(b) It costs a total of £18.60 for all 4 adults to enter the museum.

What is the cost for 1 adult to enter the museum?

Answer: £ ..... (2)

6. (i) In the museum gift shop, Hannah buys a pen which costs £2.85 and a bookmark which costs £1.29

(a) What is the total cost of the pen and the bookmark?

Answer: £ ..... (2)

Hannah pays with a £10 note.

(b) How much change should she receive?

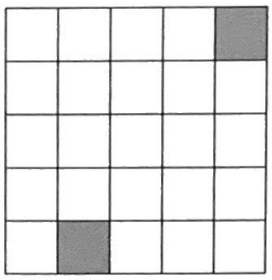
Answer: £ ..... (1)

(ii) A book in the gift shop is on sale with 20% off the normal price.
The normal price of the book is £25

How much is the book in the sale?

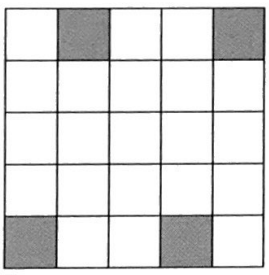
Answer: £ ..... (2)

7. (a) (i) Shade 1 more square so that the completed pattern below has **1 line** of symmetry.



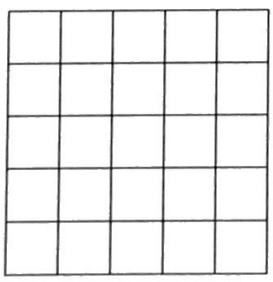
(1)

(ii) Shade 4 more squares so that the completed pattern below has **2 lines** of symmetry.



(1)

(b) Shade $\frac{4}{5}$ of the grid below.



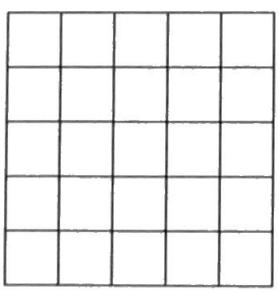
(1)

(c) (i) Fill in the boxes below.

$$12\% = \frac{12}{\square} = \frac{\square}{50} = \frac{3}{\square}$$

(2)

(ii) Shade 12% of the grid below.



(1)

8. In the first four weeks of term, Jane scores the following marks in her weekly spelling tests:

13 **11** **8** **12**

(i) Work out Jane's mean score.

Answer: ..... (2)

After the fifth week, Jane's mean score is 11.6

(ii) What mark did Jane get in her spelling test in week 5?

Answer: ..... (2)

9. Given $26 \times 45 = 1170$ work out

(i) 2.6×45

Answer: ..... (1)

(ii) 260×450

Answer: ..... (1)

(iii) 260×4.5

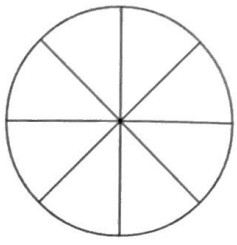
Answer: ..... (1)

(iv) $1170 \div 2.6$

Answer: ..... (1)

10. Answer the questions below.

(You may use the circle to help you.)



(i) $1 - \frac{7}{8}$

Answer: ..... (1)

(ii) $\frac{1}{4} + \frac{3}{8}$

Answer: ..... (2)

(iii) How many eighths are there in 3 wholes?

Answer: ..... (1)

(iv) $2 \times \frac{3}{8}$

Answer: ..... (1)

11. (a) Write $\frac{3}{5}$ as a decimal.

Answer: ..... (1)

(b) Write $3\frac{2}{7}$ as an improper fraction.

Answer: ..... (1)

(c) Work out $\frac{4}{7}$ of 21

Answer: ..... (2)

12. Florence reads $\frac{2}{9}$ of her book.

If she reads 16 pages, how many pages are there in total in the book?

Answer: ..... (2)

13. Arrange these numbers in order from **smallest** to **largest**.

$\frac{2}{3}$ 49% $\frac{7}{9}$ 0.509

Answer: ....., ..., ..., ... (3)

14. In these sequences, the numbers go up or down in equal steps.

Fill in the missing numbers.

(i) 2, ..., 8, 11, ... (1)

(ii) 25, ..., 17, ..., 9 (2)

(iii) ....., $\frac{1}{4}$, ..., ..., $\frac{5}{8}$ (2)

15. The table below gives the average daytime temperature in °C of five cities in January.

city	daytime temperature
Chicago	-1 °C
Los Angeles	13 °C
New York	2 °C
Ottawa	-10 °C
Toronto	-3 °C

(i) What was the difference in the average daytime temperature between the hottest and the coldest cities?

Answer: ..... °C (1)

The average night-time temperature in Toronto in January was 3 °C colder than its average daytime temperature.

(ii) What was the average night-time temperature in Toronto in January?

Answer: ..... °C (1)

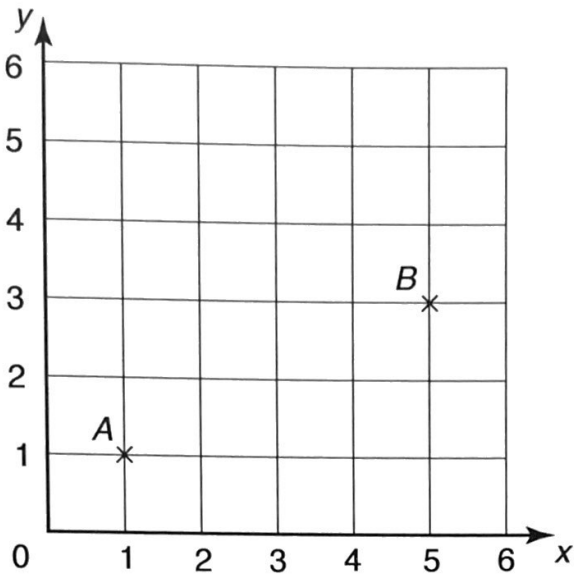
16. (i) Round 2304 to the nearest 10

Answer: ..... (1)

(ii) Round 50.16 to 1 decimal place.

Answer: ..... (1)

17. The points A (1, 1) and B (5, 3) have been plotted on this coordinate grid.



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

$ABCD$ is a rectangle. (1)

(ii) Write down the coordinates of the point D.

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

18. (a) Write 0.65 litres in millilitres.

Answer: ..... ml (1)

(b) Write 1250 grams in kilograms.

Answer: ..... kg (1)

(c) Write 15 millimetres in metres.

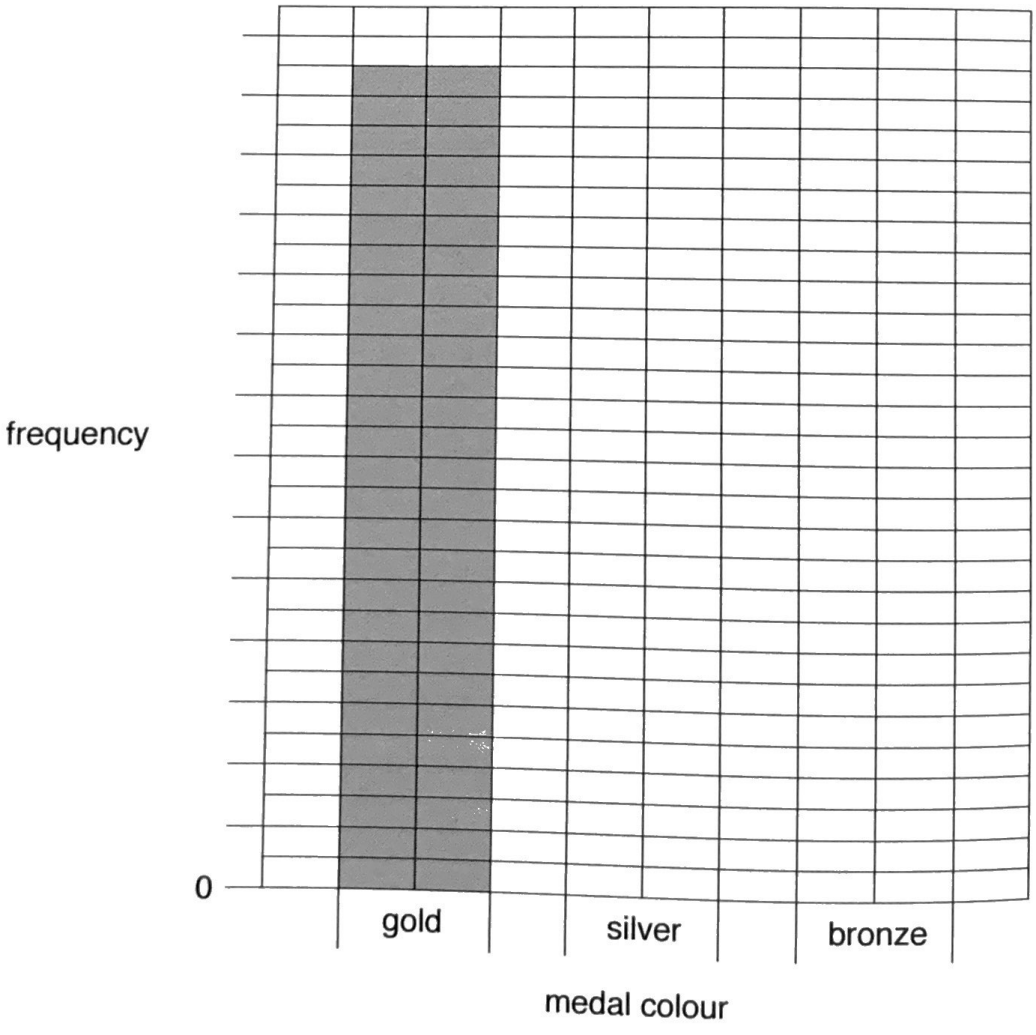
Answer: ..... m (1)

19. The frequency table below shows the number of medals won by Team GB at the Rio Olympics.

	tally	frequency
gold	𝍸 𝍸 𝍸 𝍸 𝍸 | |	27
silver		
bronze	𝍸 𝍸 𝍸 | |	17
	total	67

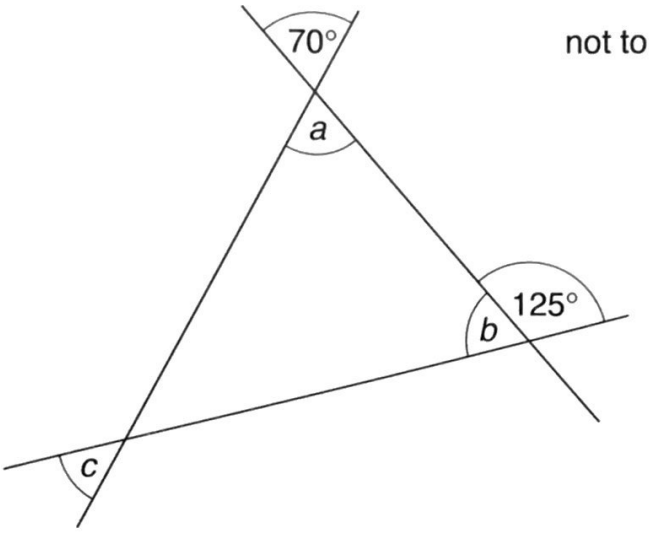
(i) Work out how many silver medals Team GB won and complete the frequency table. (2)

(ii) Complete the frequency diagram below, including labelling the scale on the vertical axis, to show the medals won by Team GB at the Rio Olympics in 2016.



(2)

20. Find the sizes of the missing angles.



not to scale

Answer: a = ... ° (1)

b = ... ° (1)

c = ... ° (2)

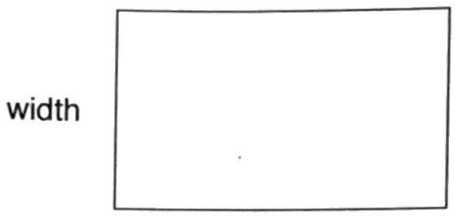
21. (i) Draw accurately triangle ABC where $AB = 6.5\,\text{cm}$, $BC = 5\,\text{cm}$ and angle $B = 75°$
(Point A is already drawn for you.)

(2)

(ii) Measure and write down the size of angle A.

Answer: ..... ° (1)

22. (i) The playground at Ada's school is rectangular.
It is 15 m long and has an area of 135 m^2.



not to scale

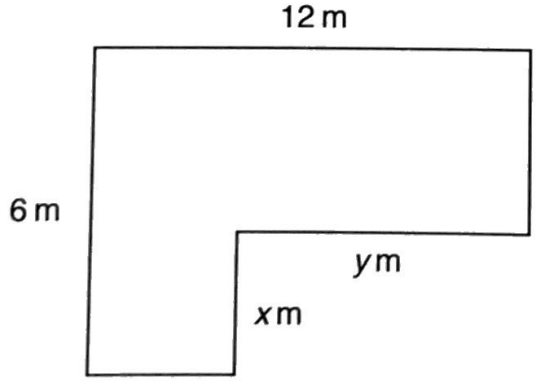
(a) Work out the width of the playground.

Answer: ..... m (2)

(b) Work out the perimeter of the playground.

Answer: ..... m (2)

(ii) The nursery playground at Ada's school is L-shaped, as shown in the diagram below.



not to scale

If the area of the nursery playground is 48 m^2, give two possible pairs of values for x and y.

x = ... m and y = ... m

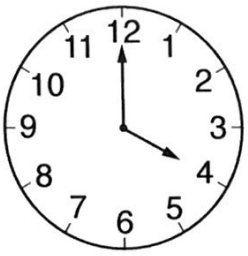
x = ... m and y = ... m (2)

23. The length of a rectangle is 3 times its width.
The perimeter of the rectangle is 40 cm.

Work out the area of the rectangle.

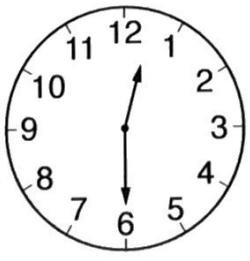
Answer: ..... cm^2 (2)

24. (i) What is the size of the obtuse angle between the two hands of a clock at 4 pm?



Answer: ..... ° (2)

(ii) What is the size of the obtuse angle between the two hands of a clock at 12.30 pm?



Answer: ..... ° (2)

TURN OVER FOR QUESTION 25

25. Use the formula $a = 50 - 2b$ to work out the following:

(i) the value of a when $b = 15$

Answer: $a =$ ..... (1)

(ii) the value of b when $a = 45$

Answer: $b =$ ..... (1)

26. Fill in the missing digits in the boxes below.

(i) $\square\square \div \square\square = \square$

(1)

(ii) $\square \times \square\square = \square\square\square$

(2)

(iii) $\square\square\square - \square\square\square = \square\square\square$

(2)

27. It takes 4 teachers 10 hours to mark 200 exam papers.

How long would it take 2 teachers to mark 1000 exam papers?
(Assume all teachers mark at the same speed.)

Answer: ..... hours (1)

(Total marks: 100)