SURNAME .... FIRST NAME ....

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

ISEB

Independent Schools
Examinations Board

COMMON ENTRANCE EXAMINATION AT 11+

MATHEMATICS

Monday 4 November 2019

Please read this information before the examination starts.

- This examination is 60 minutes long.

- Please try **all** the questions.

- 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.)

    a) 299 + 167

    Answer: .... [1]

    b) 125 − 54

    Answer: .... [1]

    c) 70 × 9

    Answer: .... [1]

    d) 424 ÷ 4

    Answer: .... [1]

    e) three hundred and three less than one thousand

    Answer: .... [1]

    f) $\frac{1}{2}$ of 98

    Answer: .... [1]

    g) 10% of 42

    Answer: .... [1]

    h) 32 × 50

    Answer: .... [1]

2. a) Write these numbers in order from smallest to largest.

   4.709   **4.79**   **4.07**   **4.9**

   Answer: .... , ... , ... , ... [2]

   b) Fill in the boxes using the symbols < , > or =

   347 081 [ ] 374 081

   8923 [ ] 89.23 × 100

   14 674 ÷ 1000 [ ] 146.74

   [3]

3. Round the following numbers:

   a) 67 to the nearest 10

   Answer: .... [1]

   b) 100 732 to the nearest 1000

   Answer: .... [1]

4.

24	25	26
34	35	36
44	45	46

Using numbers from the grid above, give an example of each of the following:

(You may use each number more than once.)

a)   a multiple of 13

Answer: .... [1]

b)   a square number

Answer: .... [1]

c)   a factor of 144

Answer: .... [1]

d)   a number which is 1 less than a prime number

Answer: .... [1]

5. a) Work out

   i) $5 + 3 \times 7$

   Answer: .... [1]

   ii) $(6 + 3) \times 2^3$

   Answer: .... [2]

   b) Fill in the missing number.

   $$9 \times 4 - 1 = 70 \div (\boxed{} - 4)$$ [2]

6.

   a) Measure and write down the length of the pencil in centimetres.

   Answer: .... cm [1]

   b) Write the length of the pencil in millimetres.

   Answer: .... mm [1]

   c) Work out the length of 1000 pencils in metres.

   Answer: .... m [2]

7. Josh is reading a book.

The chapters are numbered with Roman numerals.

a) Which chapter is he reading?

CHAPTER XVII

Answer: .... [1]

b) The year the book was published is also written using Roman numerals.

In which year was the book published?

PUBLISHED MMIX

Answer: .... [1]

8.
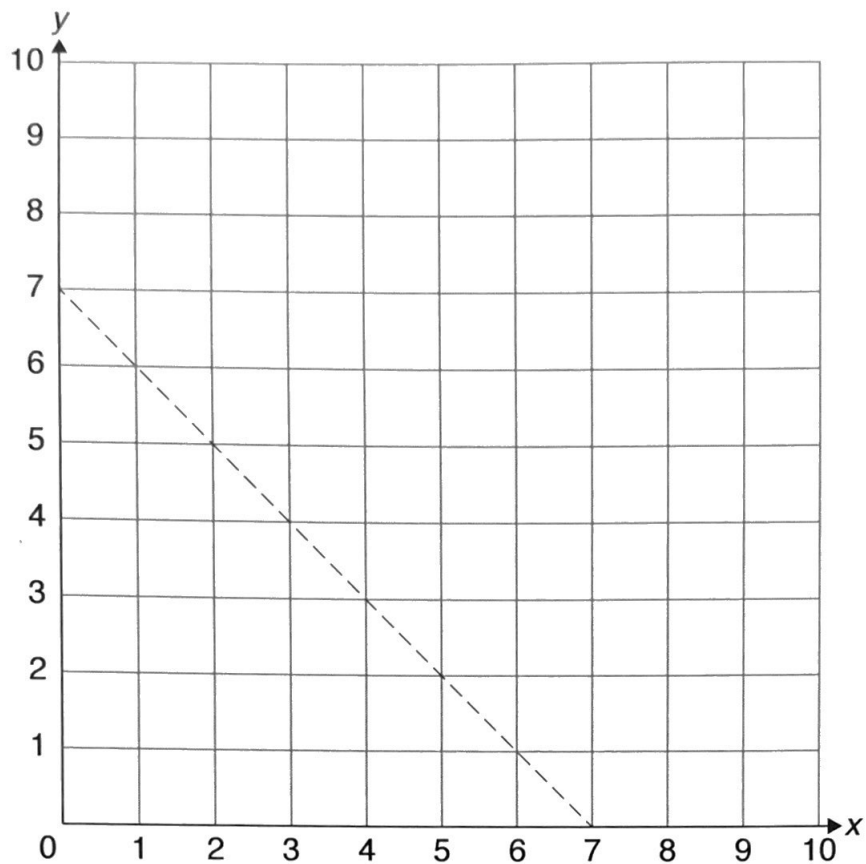
a) Plot the points (1, 1), (1, 4), (3, 1) and join them to make a shape.

Label the shape **A**. [1]

b) Reflect shape **A** in the dashed line shown.

Label the new shape **B**. [1]

c) Translate shape **A**   *6 squares right*   and   *2 squares up.*

Label the new shape **C**. [2]

d) Circle all the words which apply to shape **A**.

scalene   **isosceles**   **right-angled**   **equilateral** [2]

9. To make porridge, Arnold adds 5 tablespoons of milk for every 2 tablespoons of oats.

a) How many tablespoons of milk should Arnold add to 8 tablespoons of oats?

Answer: .... tablespoons   [1]

One tablespoon of oats weighs 12 grams.

b)   i) How much do 8 tablespoons of oats weigh?

Answer: .... g   [1]

ii) Arnold uses 8 tablespoons of oats every day.

Estimate how long a 1 kilogram box of oats will last.

Answer: .... days   [2]

10. Work out the size of each of the missing angles below.
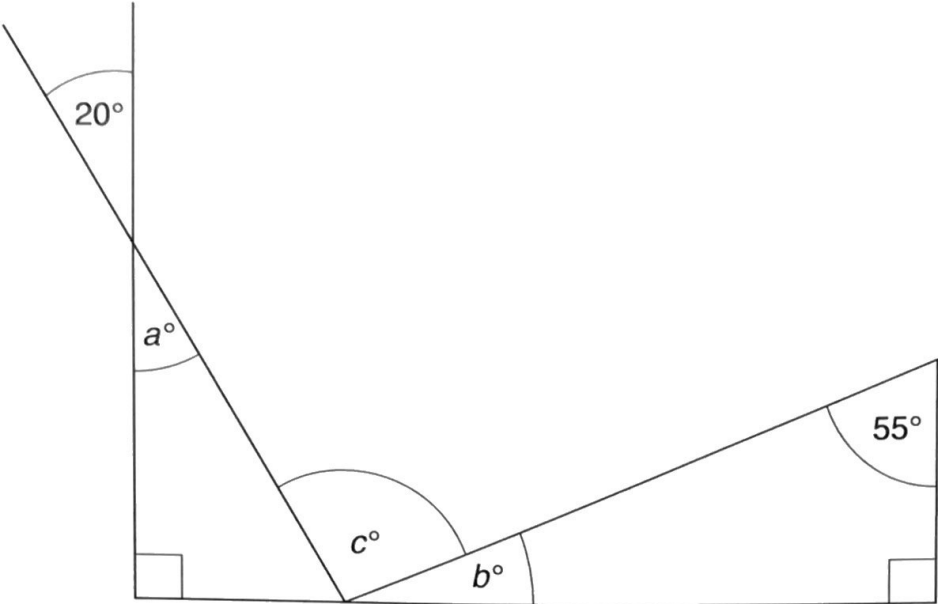
Answer: a = ... °

b = ... °

c = ... °   [4]

11. A sequence begins

92   78   71   64

a) What is the missing number in the sequence?

Answer: .... [1]

b) What is the first negative number in the sequence?

Answer: .... [1]

12. Chloe is travelling from Norwich to London by train.

The train leaves Norwich station at 11.25 a.m. and the journey to London lasts 1 hour and 49 minutes.

a) At what time does the train arrive in London?

Answer: .... [2]

In London, Chloe takes a taxi from the station to the Houses of Parliament.

The taxi leaves the station at 1.26 p.m. and arrives at the Houses of Parliament at 2.03 p.m.

b) How long does the taxi journey last?

Answer: .... minutes   [1]

13. Calculate the mean of the following numbers:

        17   8   22   19   14

Answer: .... [2]

14. a) Draw a line from each shape below to its name.

A

B

C

D

square

rhombus
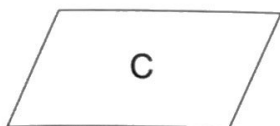
regular hexagon
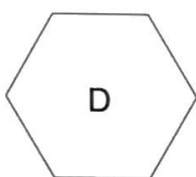
rectangle

trapezium

parallelogram

[2]

b) Complete the table below.

shape	number of lines of symmetry
A	1
B	
C	
D	

[2]

15. Some children were asked to choose their favourite activity.
The results are shown in the pie chart below.
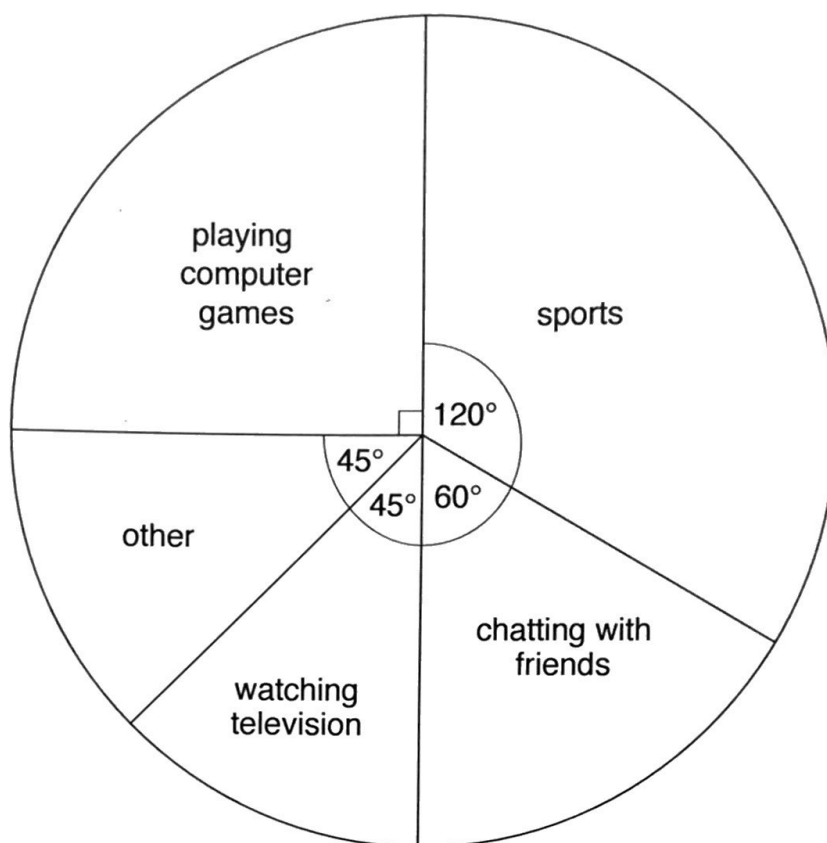
a) 24 children chose 'playing computer games'.

How many children were asked in total?

Answer: .... [1]

b) Complete the table below.

activity	number of children
playing computer games	24
sports	
chatting with friends	
watching television	
other	

[3]

c) 72 of the children asked were boys.

What fraction of the children were boys?
Give your answer in its simplest form.

Answer: .... [2]

16. Calculate the following:
(You may use the squared paper below for your working.)

a) 628 × 34
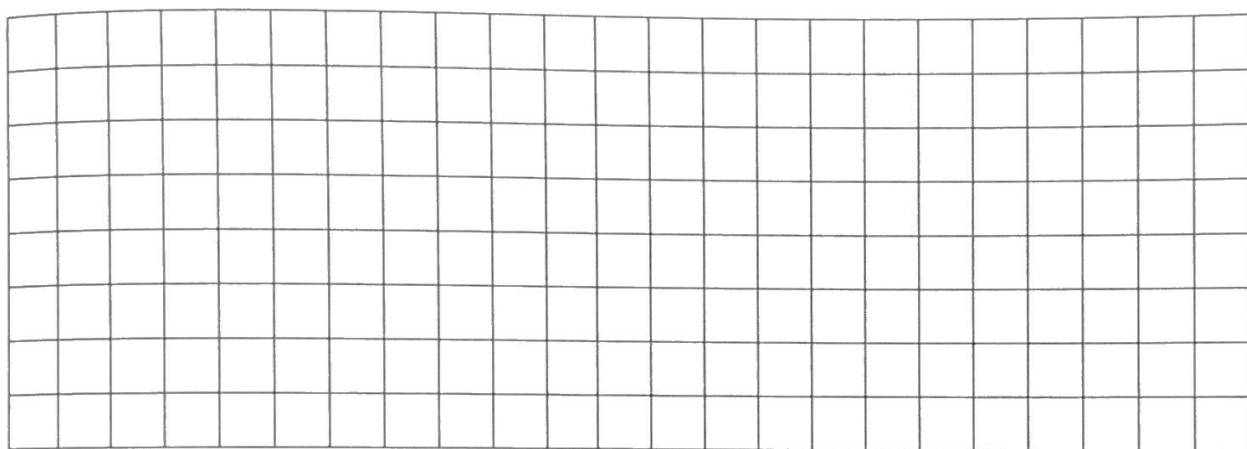
Answer: .... [3]

b) 432 ÷ 16
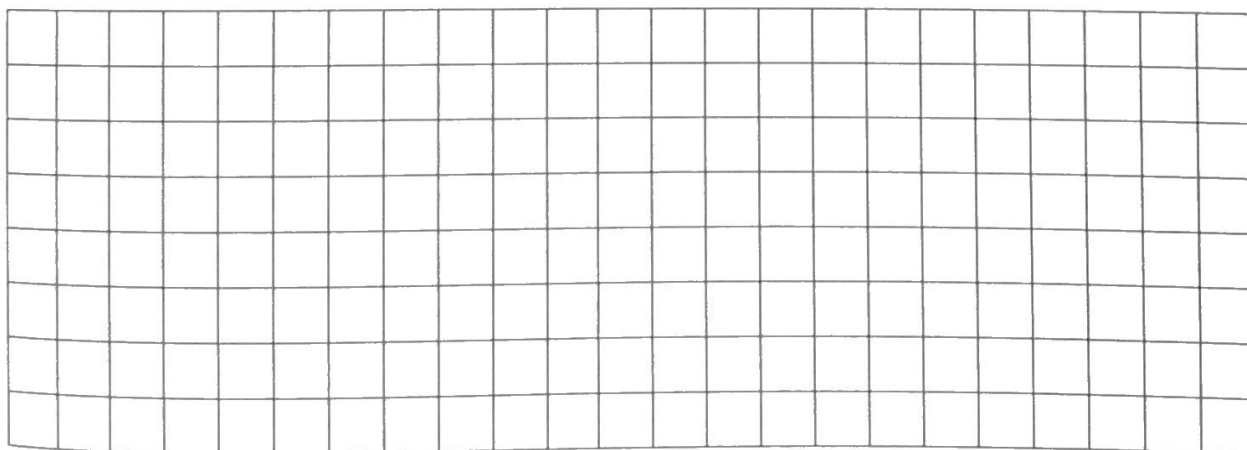
Answer: .... [2]

17. a) Shade $\frac{2}{3}$ of the grid.
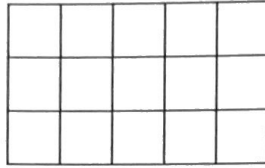
[1]

b) Shade 20% of the grid.
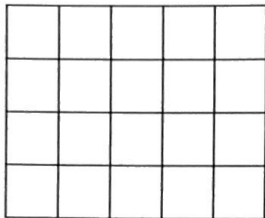
[2]

18. Fill in the missing numbers.

a) $1 - \boxed{} = \frac{5}{7}$

[1]

b) $\frac{1}{2}$ of $\boxed{} = \frac{2}{5}$

[2]

19. Change the following into decimals:

a) $\frac{11}{25}$

Answer: .... [1]

b) $2\frac{2}{5}$

Answer: .... [1]

20. Calculate 40% of 600

Answer: .... [2]

21.

3 8 7 4

Using all four of the cards above for each question, write down

a) the largest possible 4-digit odd number

Answer: .... [1]

b) two 2-digit prime numbers

Answer: .... and .... [1]

c) two 2-digit numbers with a difference of 47

Answer: .... and .... [2]

22. Given that $x + y = 13$

    a)   Work out a possible pair of values for x and y.

$x =$ ....

$y =$ .... [1]

Given also that $x - y = 1$

    b)   Work out the value of x and y.

$x =$ ....

$y =$ .... [1]

23. Monty has a rectangular garden.

8 m   not to size

4 m
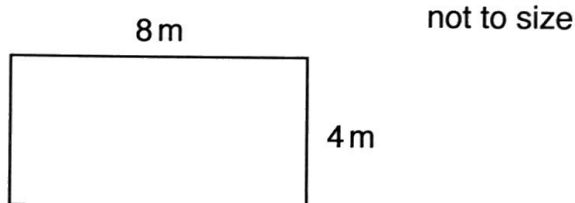
    a)   i) What is the area of Monty's garden?

Answer: ....m^2 [1]

        ii) What is the perimeter of Monty's garden?

Answer: ....m [1]

Carol's rectangular garden has a perimeter of 18 m.

b) Draw two possible gardens for Carol.

Use the scale 1 cm represents 1 m
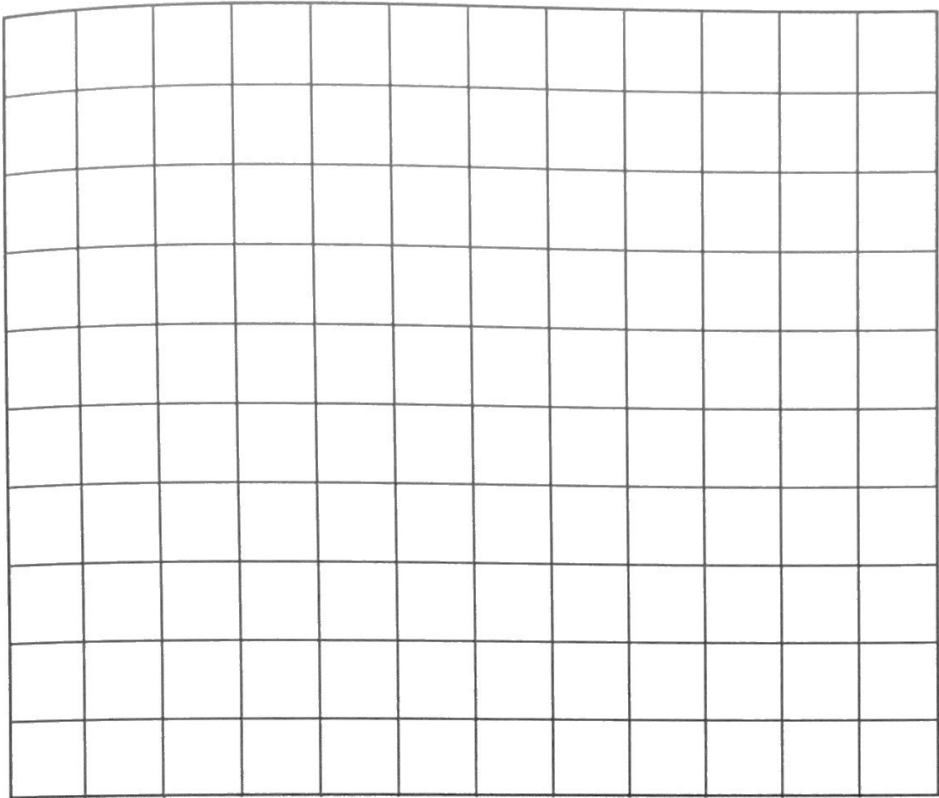
[2]

Adam's garden is divided into sections as shown below.

The area of the grass is $30\,m^2$

grass

width

patio

10 m
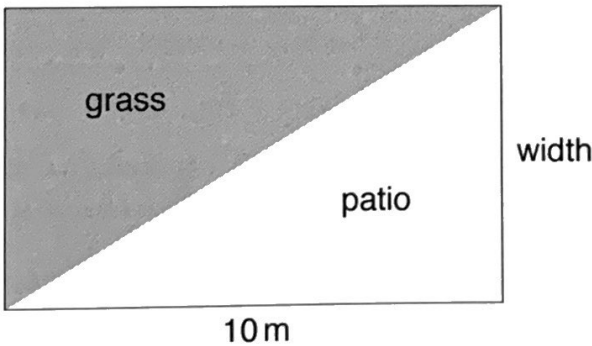
c) What is the width of Adam's garden?

Answer: .... m   [2]

24. A family is buying some furniture.

They look at a **website** and find the following price list:

item	cost
single bed	£145
double bed	£229
chest of drawers	£92
wardrobe	£187
bedside table	£55
bookshelf	£168

a) What is the total cost of a wardrobe, a bookshelf and a chest of drawers?

Answer: £ .... [1]

When the family visits a **shop**, the same double bed costs £276

b) How much would they save if they buy the double bed from the website?

Answer: £ .... [1]

The family buys two items of furniture from the website.
They spend £223 altogether.

c) Which two items do they buy?

Answer: item 1: ....

item 2: .... [2]

25. a) Harry thinks of a number, subtracts 7 then multiplies by 7

His answer is 84

What number was Harry thinking of at the start?

Answer: .... [1]

b) The angles of a triangle are A, B and C.
Angle A is three times as big as angle B.
Angle B is half the size of angle C.

What is the size of angle A?

Answer: .... ° [2]

TURN OVER FOR QUESTION 26

26. In the grid below, each symbol stands for a number.

The total for the symbols is written at the end of each row and each column.

Find the missing total.

Answer: .... [3]

27. Tap X can fill a bath in 12 minutes.

Tap Y can fill a bath in 6 minutes.

How long will it take to fill the bath with both taps running at the same time?

Answer: .... minutes [2]

(Total marks: 100)