11+ Examination

Sample Entrance Paper

- Mathematics -

Time allowed 30 minutes

First name	
Last name	
Date of birth	
Name of my school	

Instructions:

- This exam is 30 minutes long
- The exam is out of 40 marks

EQUIPMENT

- All you will need is a pencil or a pen and a rubber
- No calculators are allowed

ADVICE

- The questions get progressively harder
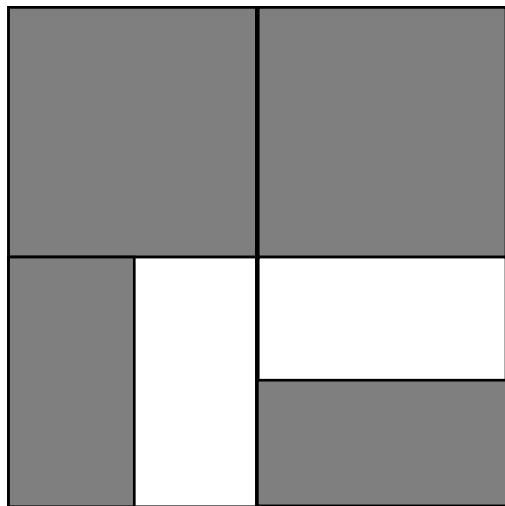- They are designed to challenge you and make you think

Try your best

Bancroft's
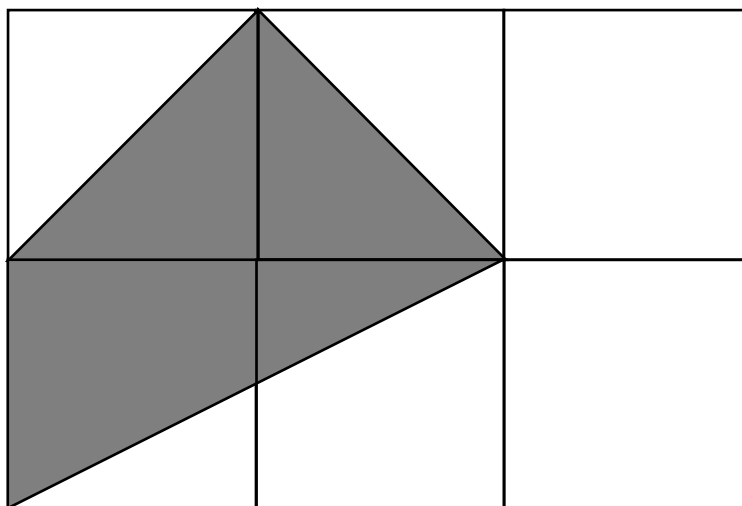Independent Co-educational Day School 7–18

1. What fraction of the following shapes are shaded?

   Give your answers as fractions in their simplest form.

a)

....
(2)

b)

....
(2)

2. Enzo and Steve both go for a run.

    Steve runs 5 miles in 1 hour.
    Enzo runs at the same speed as Steve but runs for 7 miles.
    How many more minutes did Enzo run for compared to Steve?

    ……………………………. minutes

    (2)

3. I have a machine that multiplies by 3 and then subtracts 2.
    For example, if I put 10 in, I get 28 out.
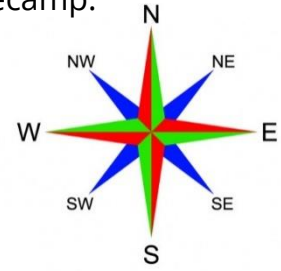
    a) If I put in 5, what do I get out?

    ……………………………

    (1)

    b) What did I put **in** if I get 70 **out**?

    ……………………………

    (2)

4. a) An explorer scout goes on a walk from their Basecamp.

He travels as follows:

- North for 1 mile
- then East for 2 miles
- then South for 3 miles.

In what **direction** should he now travel in order to arrive back at their basecamp?

....
(2)

b) Another explorer scout goes on a walk from their Basecamp.

She travels as follows:

- South East for 1 mile
- then North East for 1 mile
- then South for 1 mile
- then South West for 1 mile
- then North West for 1 mile

In what **direction** should she now travel in order to arrive back at her basecamp?

....
(2)

5. A class of 10 pupils is standing in a circle.

There are 3 pupils between Adam and Ben and 3 pupils between Adam and Clare.

a) How many pupils are there between Ben and Clare?
    Circle the correct answer (0, 1, 2, 3 or 4)

0   1   2   3   4

(2)

Another class of 15 pupils is also standing in a circle.

b) Is it possible for the circle to be arranged so that every boy is standing next to two girls and every girl is standing next to two boys?
(i.e. the circle goes: boy, girl, boy, girl,... etc)

Tick the correct box

Yes ☐   No ☐

(1)

Another class of 15 pupils is arranged so that every boy stands next to 1 girl and 1 boy and every girl stands next to 2 boys.

c) How many girls are there in the class?

....

(2)

6. What is the date and time 501 hours after 2pm on January 1st 2021?

Give the date in the form DD/MM/YYYY i.e. September 7 th 1988 is 07/09/1988

Date   .... /................. /...........................

(2)

Time   ....

(2)

7. 3 apples and 2 bananas costs £1.25

1 apple and 1 banana costs £0.48

Work out how much it would cost to buy 5 bananas.

....

(3)

8.   Using the fact that $1 + 2 + 3 + ... + 78 + 79 + 80 = 3240$

i.e. the sum of the whole numbers from 1 up to 80 is 3240

Work out the value of:

a) $3 + 4 + 5 + ... + 78 + 79 + 80$

....
(2)

b) $2 + 4 + 6 + ... + 156 + 158 + 160$

i.e. work out the sum of the even numbers from 2 up to 160

....
(2)

c) $1 + 3 + 5 + ... + 155 + 157 + 159$

i.e. work out the sum of the odd numbers from 1 up to 159

....
(2)

9. In this question you will be shown a method to work out the missing length in this right-angled triangle:

3cm

?

4cm
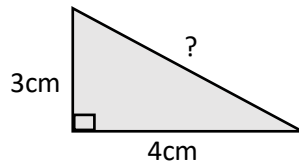
The diagram below uses four identical copies of the triangle to form a big square.

3cm   4cm

4cm   3cm

?   ?

?   ?

3cm   4cm

4cm   3cm
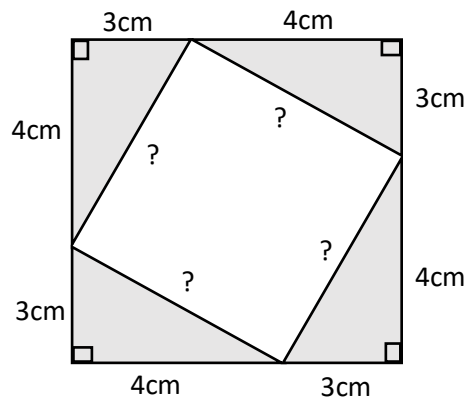
a) By calculating the area of the big square and taking away the area of the four triangles, **work out the area of the smaller square formed inside the big square.**
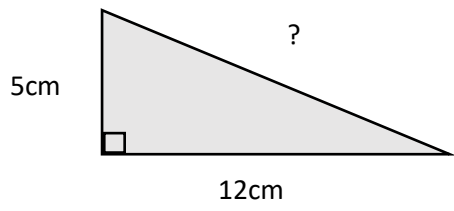
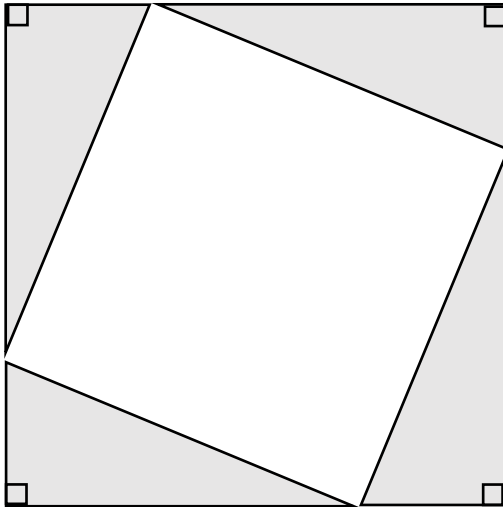*You must show your working clearly and use the method stated.*

.... cm^2

(3)

b) Use your answer to a) to work out the missing length in the original diagram

.... cm

(1)

c) Use the same method to work out the missing length in this triangle.

?

5cm

12cm

You may find it useful to use the below diagram.

.... cm

(3)

10. How many 3 digit numbers are there where all 3 digits are odd?

....
(2)

___

END OF PAPER- Now go back to the beginning and check your work