



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

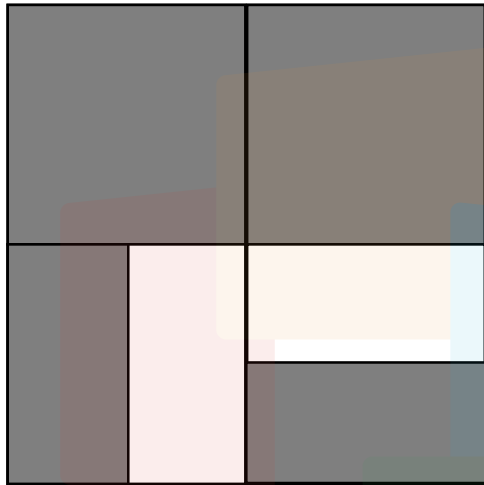
Try your best

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.

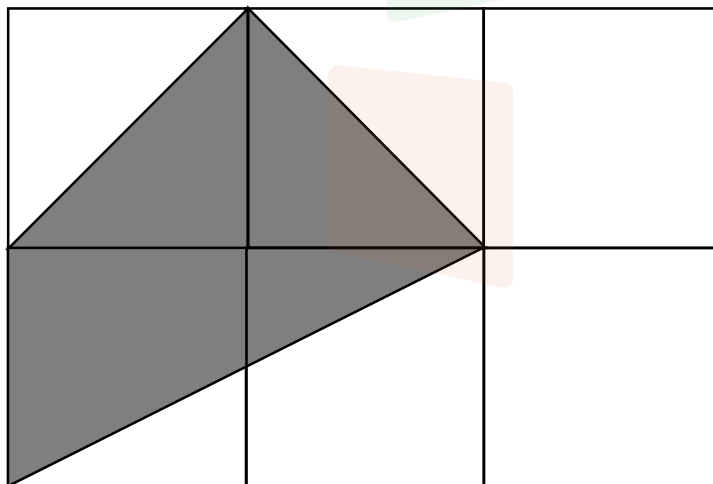
a)



$$\frac{3}{4}$$

(2)

b)



$$\frac{1}{3}$$

(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?

24
..... 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?

13
.....
(1)

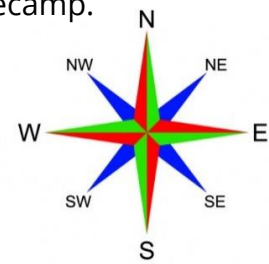
- b) What did I put **in** if I get 70 **out**?

24
.....
(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?

NW

.....

(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?

N

.....

(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?

5

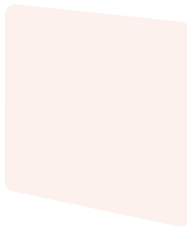
(2)

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 7th 1988 is 07/09/1988

Date **22** / **01** / **2021**
(2)

Time **11 am**
(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.



..... **£0.95**
(3)

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

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

Work out the value of:

a) $3 + 4 + 5 + \dots + 78 + 79 + 80$

3237

.....
(2)

b) $2 + 4 + 6 + \dots + 156 + 158 + 160$

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

6480

.....
(2)

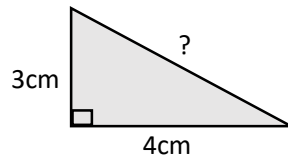
c) $1 + 3 + 5 + \dots + 155 + 157 + 159$

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

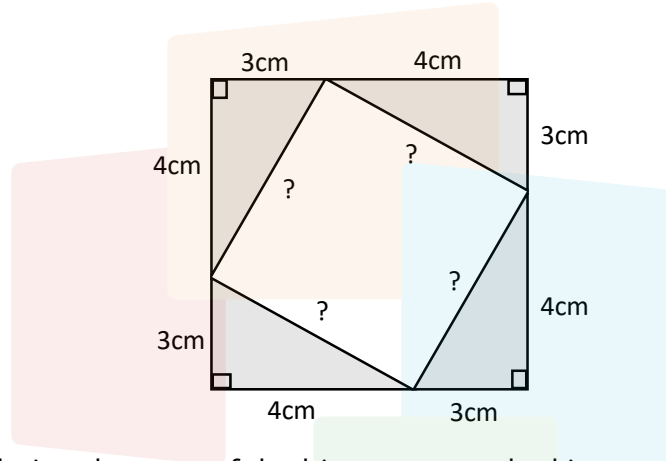
6400

.....
(2)

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



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



- 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.**

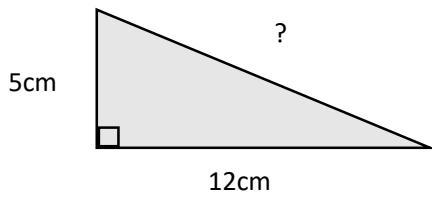
You must show your working clearly and use the method stated.

..... 25 cm²
(3)

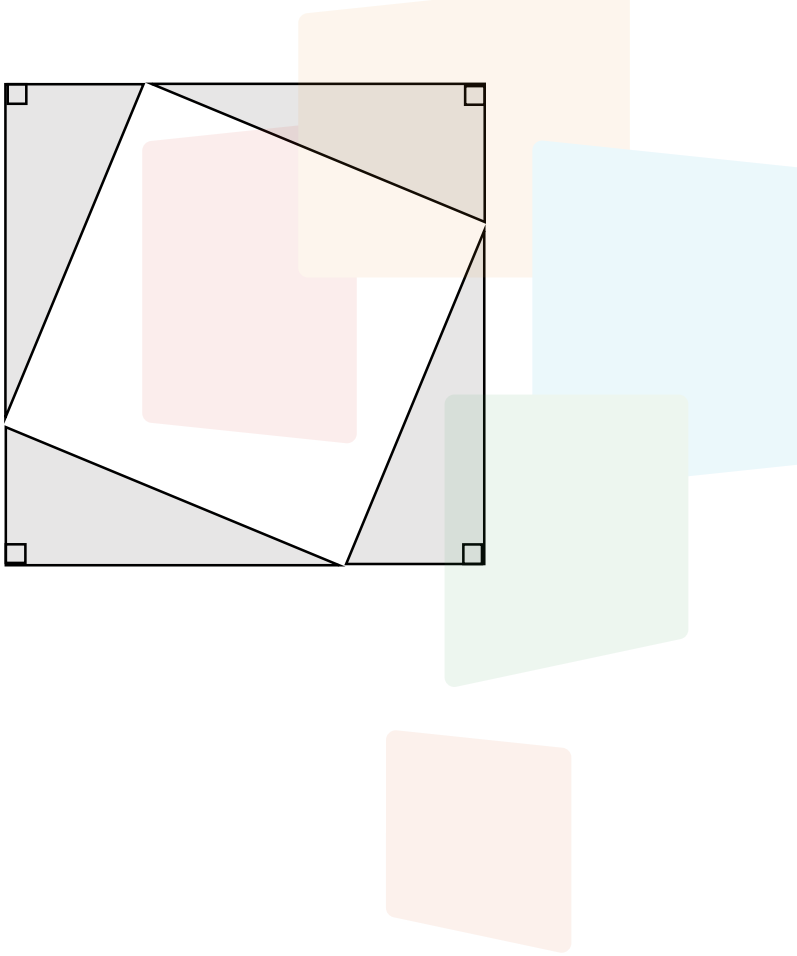
- b) Use your answer to a) to work out the missing length in the original diagram

..... 5 cm
(1)

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

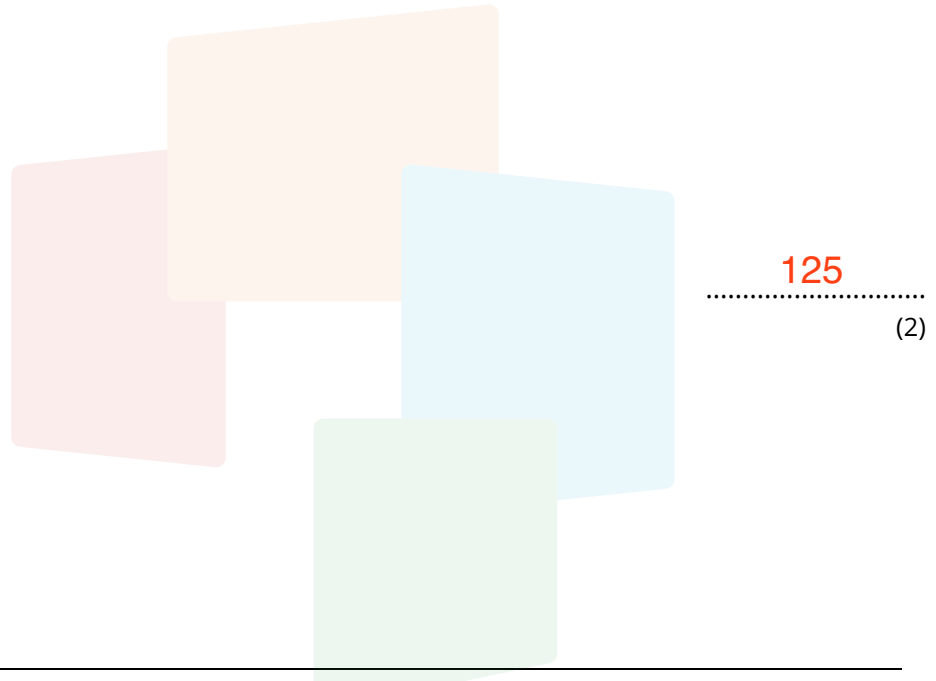


You may find it useful to use the below diagram.



13 cm
(3)

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



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

