BANCROFT'S SCHOOL

11+ EXAMINATION

Mathematics Sample Paper 2

Time allowed 45 minutes

First name	
Last name	
Date of birth	
Name of my school	

Instructions:

- This exam is 45 minutes long
- The exam is out of 65 marks

EQUIPMENT

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

ADVICE

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

1. Calculate

a) 1000 – 982

.....

[1]

b) 2 x 7386

.....

[2]

c) 9876 + 54321

.....

[2]

d) 1221 ÷ 11

.....

[2]

e) What is the remainder when 11111 is divided by 9?

.....

[2]

2. I have £45 in 5p coins. How many 5p coins is that?

.....

[2]

3. a) A bucket weighs 21.1 kg when full of water.
Exactly half of the water is poured out and the bucket now weighs 12.5kg.
What is the weight of the bucket when empty?
Give your answer in kilograms.

..... kg

[3]

b) The combined height of 3 identical hobbits is the same as the combined height of 2 identical elves.
Each elf is 55cm taller than each hobbit.
How tall is each hobbit?
Give your answer in centimetres.

..... cm

[3]

4. Albert is standing directly behind Bella in a queue.
There are 15 people in front of Bella and 12 people behind Albert.

a) How many people are there altogether in the queue?

.....

[2]

Charlie is also in the same queue. There are 7 people in front of him.

b) How many people are behind Charlie?

.....

[1]

Danya and Elias are in a different queue and Elias is directly behind Danya.
There are 25 people in front of Elias and 16 people behind Danya.

c) How many people are there altogether in this queue?

.....

[1]

5. a) How many hours are there from 1pm on Wednesday to 11am on Saturday?

.....

[2]

b) I cycle on my bike at 12 miles per hour for 1 hour and 20 minutes.

How far do I travel?

Give your answer in miles

..... miles

[2]

c) I drink a quarter of a bottle of drink. I then drink one third of what is left. Lastly, I drink one half of what is left.
What fraction of the original drink did I drink?

.....

[3]

6. a) On a clockface, how big is the angle between the minute hand and the hour hand at 5:00 pm?

..... °

[2]

b) In a classroom of 30 pupils:
16 pupils have been to Africa
13 have been to America
5 have been to both Africa and America

How many pupils have been to neither Africa nor America?

.....

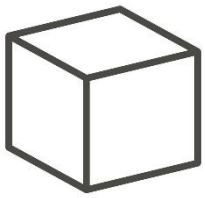
[2]

c) At a bank, gold bars are stacked in groups of 6.
20 stacks of 6 gold bars weigh 80kg
At a different bank, gold bars are stacked in groups of 12.
How much do 60 stacks of 12 gold bars weigh?

..... kg

[2]

7. Below is a picture of a cube.
In this view, you can see:
3 faces, 7 vertices and 9 edges



a) How many faces of the cube cannot be seen?

.....
[1]

b) How many vertices of the cube cannot be seen?

.....
[1]

c) How many edges of the cube cannot be seen?

.....
[1]

---

8. I have a bag full of 5p coins, a bag full of 2p coins and a bag full of 1p coins.
I take 5 coins from these bags and get a total of 11p.
What were the 5 coins that I took?

.....p .....p .....p .....p .....p

[2]

9. What number goes inside the dotted square to make each equation true?

a) $27 \text{ x } 312 = 54 \text{ x } \square$

.....

[2]

b) $\frac{1}{12} + \frac{1}{24} = \frac{1}{\square}$

.....

[2]

c) $\sqrt{\square - 14} - 2 = 3$

$\sqrt{\ }$ *means square root, i.e.* $\sqrt{49} = 7$

.....

[3]

10. The following examples are useful for this question:
2^6 means 2 x 2 x 2 x 2 x 2 x 2 = 64
5^3 means 5 x 5 x 5 = 125

What is the value of:

a) 3^3

.....
[2]

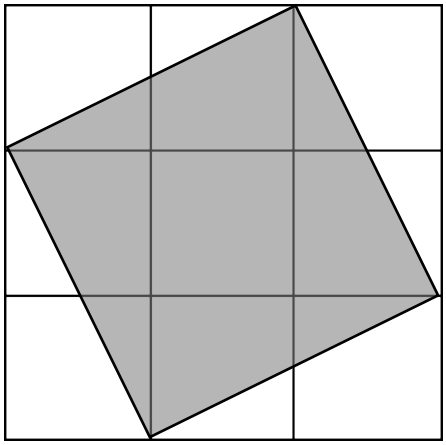
b) $(3^3 - 5^2)^5$

.....
[2]

c) $\frac{2^8}{8^2}$

.....
[3]

11. a)

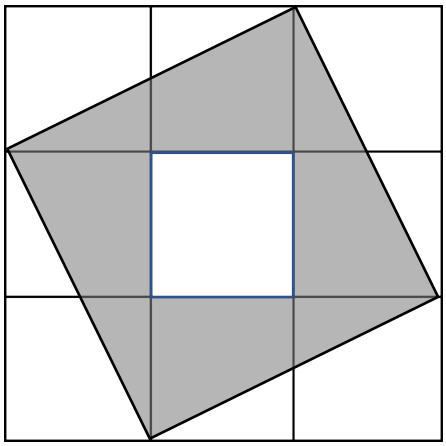


What fraction of the 3x3 big square is occupied by the shaded square?

.....

[3]

b) A square inside the shaded square is now unshaded.



What fraction of the shaded square was unshaded?

.....

[2]

12. Ten balls are put into a bag. On each ball is a number from 1 to 10.
The 1st ball has the number 1 on it.
The 2nd ball has the number 2 on it, and so on...

3 balls are taken out and numbers on them are multiplied together.
The result is a square number.

a) Which number ball was definitely not taken out?

.....
[2]

We now learn that the number 5 was included in the numbers that were taken.
There are two options for what numbers were on the other two balls.

b) What are those two options?

..... & ..... or ..... & .....
[3]

All the balls are placed back and three more balls are pulled out.
The numbers on the balls are multiplied together and the result is again a square number.
Two of the balls are 2 and 8.

c) Write down all the different options for what the 3rd ball could be?

.....

[2]

END OF PAPER