



**ST. NICHOLAS COLLEGE
RABAT MIDDLE SCHOOL**

**Level
7 - 8**

HALF-YEARLY EXAMINATIONS – FEBRUARY 2017

YEAR 7

MATHEMATICS Level 7 - 8

TIME: 1hr 30mins

Main Paper

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	Main	NC	Global Mark
Mark																

DO NOT WRITE ABOVE THIS LINE

NAME AND SURNAME: _____ **CLASS:** _____

INSTRUCTIONS TO CANDIDATES:

Read all the questions carefully before you start answering.

- Answer all questions.
- This paper carries 75 marks.
- Calculators and mathematical instruments are allowed but all necessary working must be shown.

1. Write:

(a) 10 billion as a **power of ten**

(b) 10^7 in **figures**

(2 marks)

2. (a) i) Underline the **prime** numbers below.

25, 31, 49, 59, 73

ii) Why are the numbers you underlined **prime**?

Because _____

(b) Write 360 as a **product of prime factors**.

360 = _____

(4 marks)

3. This is a magic square.

All fractions (vertically, horizontally, and diagonally) add up to 1.

Work out the **value of the fraction** in the shaded square.

Fill in ALL the empty squares.

	$\frac{3}{5}$	$\frac{2}{15}$
	$\frac{5}{15}$	

(5 marks)

4. Fill in the following number sequences:

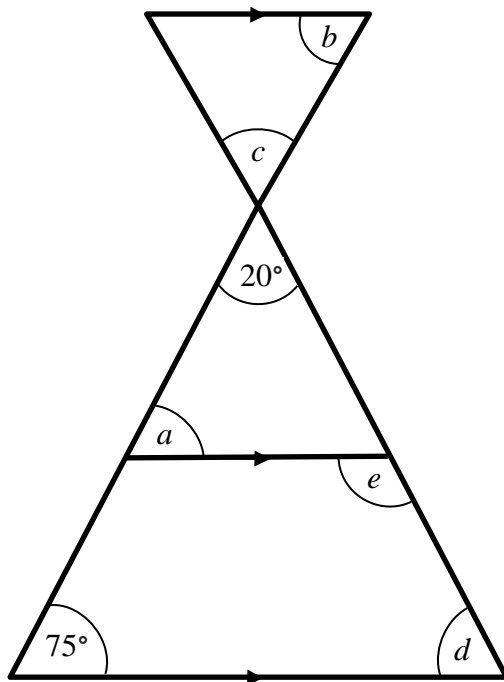
(a) 100, _____, 96, _____, 92.

(b) 9, _____, _____, 36, _____, _____, 81.

(3 marks)

5. Work out the missing angles giving a **reason** for your answer.

Note: The diagram is not drawn to scale.



$a =$ _____^o

Reason: _____

$b =$ _____^o

Reason: _____

$c =$ _____^o

Reason: _____

$d =$ _____^o

Reason: _____

$e =$ _____^o

Reason: _____

(10 marks)

6. (a) Write a **statement** for each of the following probabilities.
The first one is done for you.

Probability	Statement
0	The probability of a human being living for 300 years
$\frac{1}{2}$	
1	

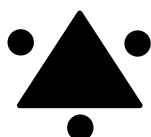
- (b) Johnny says that the probability of getting a 6 is the **same** as that of getting a 4 when throwing a fair die.

(i) Is he correct? Why? _____

(ii) What is the probability of getting an **even** number? _____

(5 marks)

7. The diagram below shows a pattern made of one triangle and a number of circles.



Pattern 1



Pattern 2



Pattern 3

Pattern 4

- (a) **Draw** pattern 4 in the space provided.

- (b) **Fill in** the table:

Pattern Number	1	2	3	4	5	...	10
Number of Circles						...	

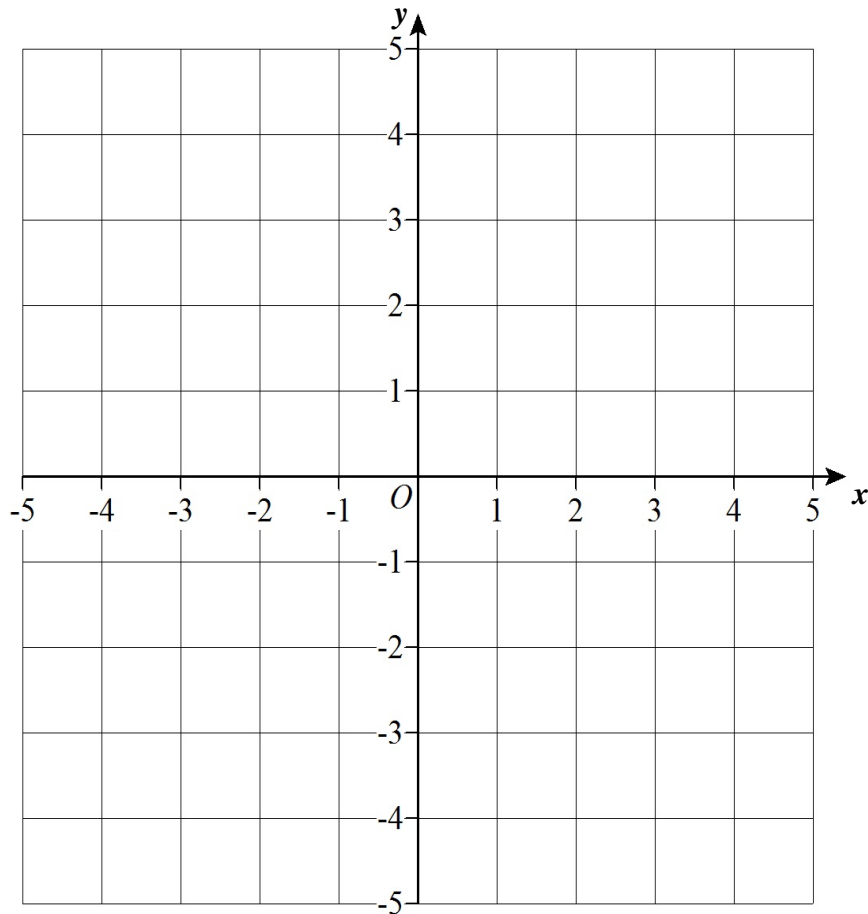
- (c) **Explain, in words, the rule** for the number of circles.

- (d) Is it possible to have 345 circles in a particular pattern? Why?

_____, because _____

_____ (7 marks)

8.



(a) On the graph paper provided, plot and join the following coordinates to form an octagon.

$(2, 4), (4, 2), (4, -2), (2, -4), (-2, -4), (-4, -2), (-4, 2)$ and $(-2, 4)$

(b) (i) What are the **coordinates** of the **centre** of the octagon? (_____, _____)

(ii) **Explain** how you found the centre of the octagon.

(6 marks)

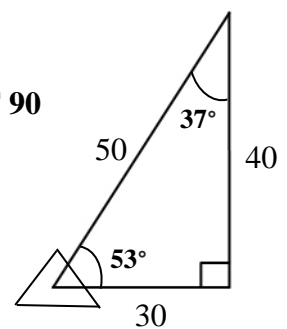
9. (a) **Fill in** the LOGO commands to draw the triangle.

PD RT 37 FD _____ RT _____ FD 40 RT _____ FD _____ RT 90

(b) Mention **two facts** about the triangle drawn.

Fact 1: _____

Fact 2: _____



(6 marks)

10. This week, Pete, Mary and Jake are given €6, €12, and €9 respectively as pocket money.

(a) Write the pocket money each receives in the form of a **ratio**.

Pete : Mary : Jake

_____ : _____ : _____

(b) **Simplify** your answer in (a).

Pete : Mary : Jake

_____ : _____ : _____

(c) Next week, Pete, Mary, and Jake will receive their pocket money in the **same ratio as before**. If Pete gets €18, work out the pocket money that **Mary** and **Jake** will receive.

Mary's pocket money = € _____; Jake's pocket money = € _____

(5 marks)

11. John sat for five half-yearly primary exams. He got 90 in Maths and this was his **highest** mark. He got 85 in **both** English and Maltese. His **lowest** mark was in Religion.

(a) If the **range** of his marks was 25, what mark did he obtain in **Religion**?

(b) If the **mean** of his marks was 80, work out the mark he obtained in **Social Studies**.

(c) The range of this year's marks was 0. The mode is 65.

(i) Did John pass all his exams?

(ii) Why?

(7 marks)

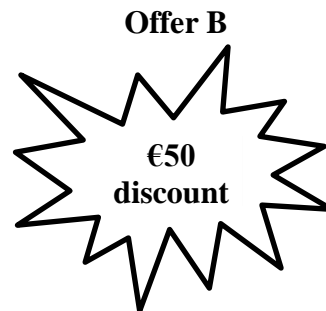
12. (a) Fill in the table below.

Fraction	Decimal	Percentage
	0.5	
$\frac{1}{5}$		
		45%

(b) Work out:

$$\frac{15}{44} \times \frac{40}{45} \times \frac{11}{50}$$

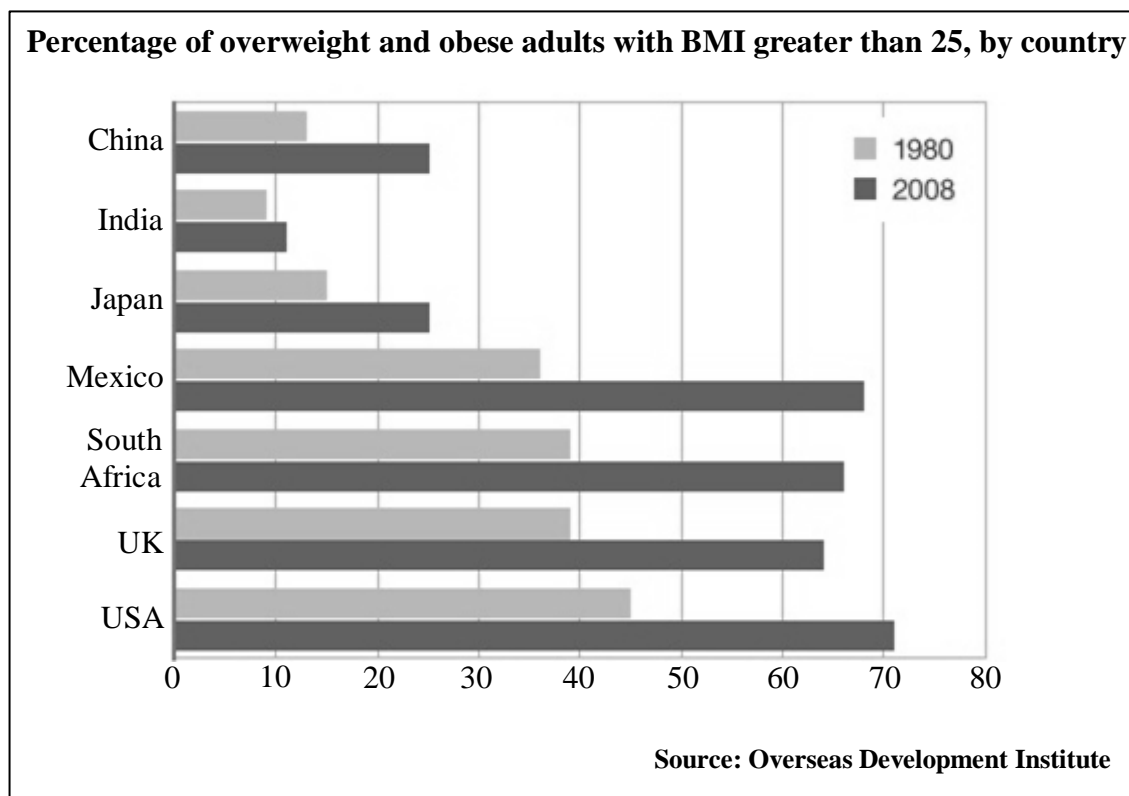
(c) Which is the **best offer** for a carpet costing €120 and by how much?



Best offer is _____ by € _____

(8 marks)

13. The following bar chart represents obesity in adults amongst several countries.



(a) (i) Which country has the most obese population? _____

(ii) How do you know?

(b) (i) Which country nearly remained the same over the period 1980 to 2008? _____

(ii) What is the average percentage for 1980 and 2008 ?

(c) (i) Which **country** doubled the obesity rate? _____

(ii) Justify your answer.

(7 marks)

END OF MAIN PAPER