



ST NICHOLAS COLLEGE  
RABAT MIDDLE SCHOOL  
HALF YEARLY EXAMINATIONS

February 2016

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**YEAR 7**

**MATHEMATICS**  
**Levels 7 – 8**

**Time: 1 hr 30 mins**

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***Main Paper***

Name: \_\_\_\_\_

Class: \_\_\_\_\_

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

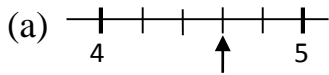
**DO NOT WRITE ABOVE THIS LINE**

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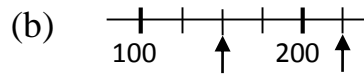
**INSTRUCTIONS TO CANDIDATES**

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

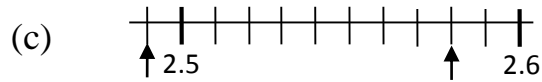
1. Read the following scales



Answer: \_\_\_\_\_



Answers: \_\_\_\_\_



Answers: \_\_\_\_\_

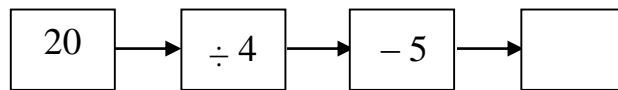
(5 marks)

2. Change 384 **hours** into days.

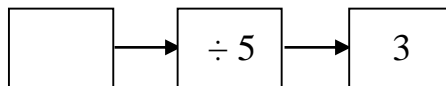
Answer: \_\_\_\_\_ days

(2 marks)

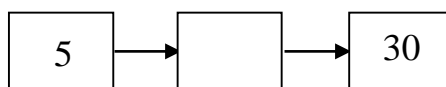
3. (a) Work out the **output**:



(b) Work out the **input**:



(c) Write down a **possible rule** for this number machine.



(4 marks)

4. (a) i) List all the **even numbers** between 5 and 15.

**Even numbers:** \_\_\_\_\_

ii) Find their **mean**.

**Answer: Mean =** \_\_\_\_\_

(b) i) List all the **factors of 20**.

**Factors of 20:** \_\_\_\_\_

ii) Find their **range**.

**Answer: Range =** \_\_\_\_\_

(c) i) Write down all the **multiples of 4** from 10 to 30.

**Multiples of 4:** \_\_\_\_\_

ii) Find their **median**.

**Answer: Median =** \_\_\_\_\_

(8 marks)

5. Fill in using words from the following:

**acute, obtuse, reflex, straight line, whole turn**

Straight line = obtuse + \_\_\_\_\_

\_\_\_\_\_ = straight line + 180°

\_\_\_\_\_ = obtuse + obtuse

\_\_\_\_\_ = 132° + 48°

(4 marks)

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6. Use the **calculator** to work out the following:

(a)  $\sqrt{529} + 19^2$

**Answer:** \_\_\_\_\_

(b)  $\frac{3}{4} + \frac{1}{3} - \frac{3}{8}$

**Answer:** \_\_\_\_\_

(2 marks)

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7. The school population in a middle school is 480.

There are 42 more girls than boys.

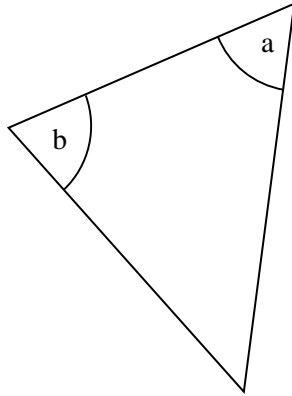
How many **girls** are there?

**Answer:** \_\_\_\_\_ girls

(3 marks)

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8. (a)

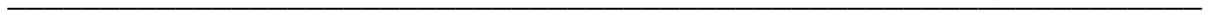


i. Measure the angles :

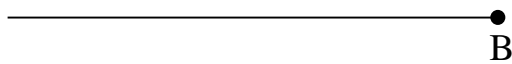
$\angle a = \underline{\hspace{2cm}}$ <sup>o</sup>

$\angle b = \underline{\hspace{2cm}}$ <sup>o</sup>

ii. Is this triangle scalene, isosceles or equilateral? Give a **reason** for your answer.



(b) Use your **protractor** to draw an angle of  $49^\circ$  at B. **Mark** the angle with an arc.



(5 marks)

9. (a) Write down any **2 factors** of 736.

**Answer:** \_\_\_\_\_

(b) Find **one common multiple** of 15 and 20.

**Answer:** \_\_\_\_\_

(c) Which of the following numbers is **prime**?

51, 52, 55, 59

**Answer:** \_\_\_\_\_

(d) Write down 252 as a **product of its prime factors**.

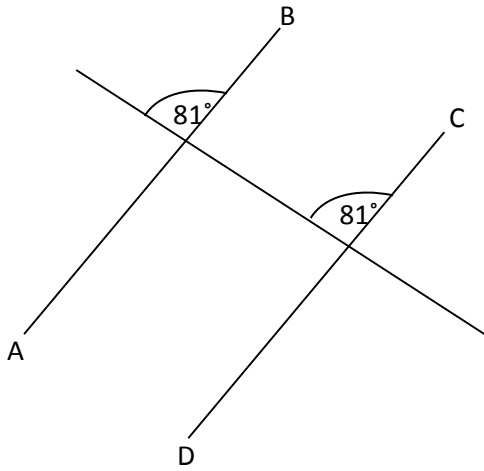
**Answer:** \_\_\_\_\_

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(7 marks)

10. (a) What can you say about lines AB and CD?

Give a reason for your answer.




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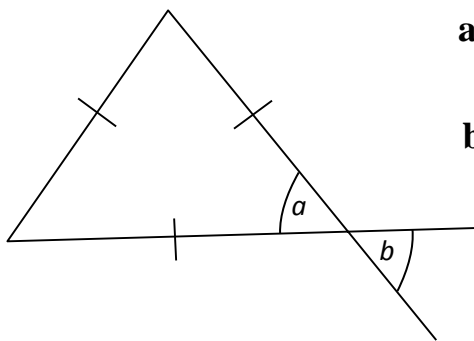


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(b) Find the size of each angle marked with a letter.

Give reasons for your answers.

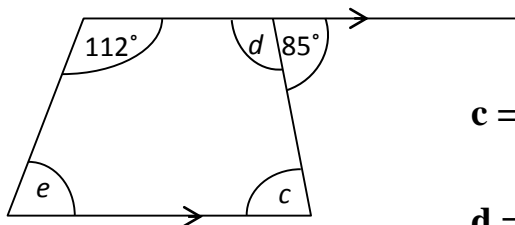
i.



**a** = \_\_\_\_\_ °

**b** = \_\_\_\_\_ °

ii.



**c** = \_\_\_\_\_ °

**d** = \_\_\_\_\_ °

**e** = \_\_\_\_\_ °

(12 marks)

11. On a particular morning a group of university students recorded how long it took them to get from home to university. The following were the results in minutes:

17      25      42      16      18      36      51      20      9      41  
 72      65      41      45      30      19      27      34      39      40  
 11      13      25      42      55      68      75      32      44      49

(a) Fill in the **frequency table** below:

Time (in minutes)	Tally	Frequency
1 – 15		
16 – 30		
31 – 45		
46 – 60		
61 – 75		
<b>Total :</b>		_____

(b) How many students took **longer than an hour** to get to university?

**Answer:** \_\_\_\_\_ students

(c) How many students took **half an hour or less** to get to university?

**Answer:** \_\_\_\_\_ students

(d) What fraction of the students took **up to an hour** to get to university?  
**Simplify** your answer.

**Answer:** \_\_\_\_\_

(e) Using the frequency table **only**, is it possible to say whether any students took exactly 50 minutes to get to university? Why?

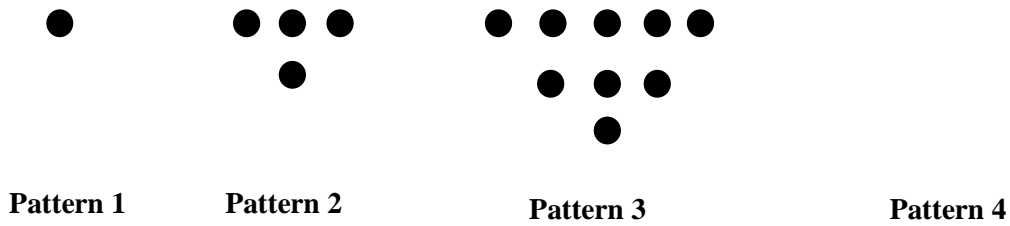
\_\_\_\_\_

\_\_\_\_\_

(9 marks)



12. a) Draw the next pattern in the following sequence:



b) Fill in the following table

<b>Pattern number</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	.....	<b>10</b>
<b>Number of dots</b>	1	4						

c) Underline the correct word:

The numbers of dots in each pattern are all ( prime , even , square ) numbers.

d) If I continue the pattern will there be a pattern that uses exactly 150 dots?  
Explain.

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(7 marks)

13. (a) **Plot and label** the following points on the axes below:

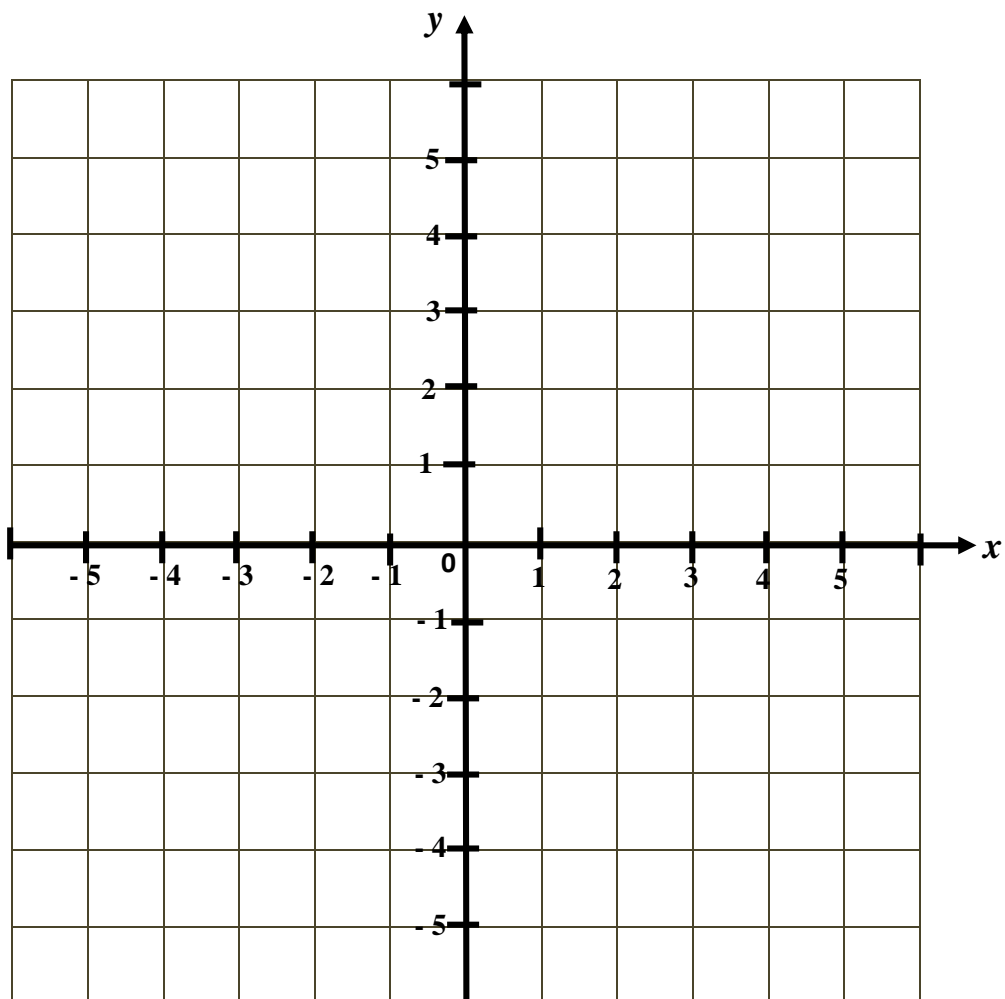
A (-4, 3), B (2, 3), C (2, -3).

(b) **Plot point D** such that ABCD forms a square.

Write down the coordinates of D.

D = ( \_\_\_\_\_, \_\_\_\_\_ )

(c) **Join the diagonals** of the square and read the coordinates of the point where they meet.



( \_\_\_\_\_, \_\_\_\_\_ )

(7 marks)

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**END OF PAPER**