NATIONAL SPORT SCHOOL
HALF-YEARLY EXAMINATIONS 2015/16

FORM 1 MATHEMATICS
Levels 7 – 8

Time: 1 hr 30 mins

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

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

(a) \[\begin{array}{c}
\text{4} & \text{5}
\end{array}\]  
(b) \[\begin{array}{c}
\text{100} & \text{200}
\end{array}\]  

Answer: _______  Answers: _______ _______  

(c) \[\begin{array}{c}
\text{2.5} & \text{2.6}
\end{array}\]  

Answers: _______ _______  

(5 marks)

2. Change 384 hours into days.

Answer: ________ days  

(2 marks)

3. (a) Fill in the missing boxes:

\[
\begin{array}{c}
20 & \div & 4 & = & \_
\end{array}\]

\[
\begin{array}{c}
\_
\end{array}\] \[\_
\begin{array}{c}
\text{-}
\end{array}\] \[\begin{array}{c}
5
\end{array}\] \[\begin{array}{c}
=
\end{array}\] \[\begin{array}{c}
\_
\end{array}\]

(b) \[\begin{array}{c}
\_
\end{array}\] \[\begin{array}{c}
\div
\end{array}\] \[\begin{array}{c}
5
\end{array}\] \[\begin{array}{c}
=
\end{array}\] \[\begin{array}{c}
3
\end{array}\]

(c) \[
\begin{array}{c}
5
\end{array}\] \[\begin{array}{c}
\_
\end{array}\] \[\begin{array}{c}
\_
\end{array}\] \[\begin{array}{c}
\_
\end{array}\] \[\begin{array}{c}
=
\end{array}\] \[\begin{array}{c}
30
\end{array}\]

(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 |

\[ \text{reflex} = \text{straight line} + 180^\circ \]
\[ \text{obtuse} + \text{obtuse} \]
\[ 132^\circ + 48^\circ \]

(3 marks)

6. Use the calculator to work out the following:

(a) \[
\frac{2}{3} \times \frac{9}{10}
\]

Answer: \[ \quad \]

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

Answer: \[ \quad \]

(2 marks)

7. The school population in a middle school is 480.
   There are 42 more girls than boys.
   How many girls are there?

Answer: \[ \quad \]

(3 marks)
8. (a) 

i. Measure the angles:

\[ \angle a = \underline{\quad} \degree \]

\[ \angle b = \underline{\quad} \degree \]

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

________________________________________________________________

(b) Use your protractor to draw an angle of 49° at B. Mark the angle with an arc.

________________________________________________________________

B (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: ____________________

(7 marks)
10. (a) What can you say about lines AB and CD?
Give a reason for your answer.

(b) Find the size of each angle marked with a letter.
Give reasons for your answers.

i. 

\[ a = \text{____} \quad \text{______________} \]

\[ b = \text{____} \quad \text{______________} \]

ii. 

\[ c = \text{____} \quad \text{______________} \]

\[ d = \text{____} \quad \text{______________} \]

\[ e = \text{____} \quad \text{______________} \]
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:

<table>
<thead>
<tr>
<th>Time (in minutes)</th>
<th>Tally</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 – 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31 – 45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46 – 60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>61 – 75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) Fill in the frequency table below:

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

Answer: __________

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

Answer: __________

(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:

[Diagram of patterns]

b) Fill in the following table

<table>
<thead>
<tr>
<th>Pattern number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of dots</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

c) Underline the correct word:

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

Answer: ___________

(8 marks)

END OF PAPER