Please write your full name here:

____________________________________

Before you start read these instructions:

- This test lasts one hour.
- The marks for each part of each question are given in brackets.
- We would like to see how you worked out your answers, so show your working. You may receive some credit even if the answer is wrong.
- If you get stuck, just go on to the next question. You may have time at the end to try the question again.
- Do not use a calculator.
1) Calculate:
   a) \(3\frac{2}{3} - 1\frac{3}{4}\) ................................................................. [2]
   .................................................................
   .................................................................
   b) \(6\frac{3}{4} \div 1\frac{1}{2}\) ................................................................. [2]
   .................................................................
   .................................................................

2) Simplify:
   a) \(2x + 3y + 4x - 2y\) ................................................................. [2]
   .................................................................
   .................................................................
   b) \(p^2 + p^2 + p^2\) ................................................................. [1]
   .................................................................
   .................................................................

3) Work out the value of \(3x - 4y\) when \(x = -2\) and \(y = -5\). ................................................................. [2]
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4) Nick takes 28 boxes out of his van. Each box weighs 32.9 kg. Work out the total weight of all the boxes. ................................................................. [3]
   .................................................................
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5) 60 British students visited one foreign country last week. The two-way table shows some of the information about these students.

<table>
<thead>
<tr>
<th></th>
<th>France</th>
<th>Germany</th>
<th>Spain</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td></td>
<td>9</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>18</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

a) Complete the two-way table. [3]  

b) Write down the probability that the student visited Germany last week. [1]

6) There are 600 pupils at Prestfield School; 55% of them are boys.

a) How many boys are at Prestfield School? [2]

b) What percentage of pupils are in the Sixth Form? [2]
7) Solve the following equations:

a) \[ 5a - 2 = 28 \]  
………………………………………………………………… [2]
…………………………………………………………………
…………………………………………………………………

b) \[ 4(3d + 1) = 3(2d + 3) \]  
………………………………………………………………… [3]
…………………………………………………………………
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8) 20 pupils scored goals for their school hockey teams last month. The table gives information about the number of goals they scored.

<table>
<thead>
<tr>
<th>Goals scored</th>
<th>Number of pupils</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

Work out the mean number of goals scored.  [3]  
…………………………………………………………………
…………………………………………………………………
…………………………………………………………………
…………………………………………………………………
9)  a) Find the size of angle B. 
   
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   ..............................................................

   b) Explain why ABC is an equilateral triangle.
   
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10) ABC is a straight line and BD = CD. 
    
    Work out the size of angle x°, giving reasons for your answer.
    
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11) AB is parallel to CD.
    
    Find the size of angles x° and y°.
    
    ..............................................................
    ..............................................................
    ..............................................................
    ..............................................................
12) The diagram shows a triangular prism. Its cross section is shaded.

a) What is its cross sectional area?

b) What is its volume?

13) Enlarge the shaded triangle by a scale factor of 2, centre (-1,3).
Simon cycled from his home to a friend’s house, stayed in there for a bit and then cycled home. This is shown in this distance-time graph.

a) When did Simon leave home? ........................................... [1]

b) How long was he at his friend’s house? ........................................... [1]

c) How far did he cycle altogether? ........................................... [1]

d) How fast did he cycle on his way to his friend’s house? ........................................... [2]

e) Did he cycle faster on the way there or on the way back? Give a reason for your answer. ........................................... [1]
15) a) Work out the size of the exterior angle of a regular hexagon.

b) What is the area in cm²?

c) What is the least possible value of the area in mm²?

d) What is the greatest possible value of the area in mm²?

16) a) Express 135 as the product of its prime factors.

b) Find the highest common factor (hcf) of 135 and 180.
17) Calculate the size of the largest angle in the quadrilateral. 

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18) A diamond ring is bought in 2006. Every year its value increases by 20%. In 2007 it was worth £3000.

a) What was the ring worth in 2009? 

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b) What was the ring worth in 2006? 

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END OF EXAMINATION
Now go back and check your answers, and try any questions you may have left out.