HSC Mathematics General 2 Specimen Examination
Marking Guidelines

Section I

Multiple-choice Answer Key

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>B</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
</tr>
<tr>
<td>4</td>
<td>D</td>
</tr>
<tr>
<td>5</td>
<td>B</td>
</tr>
<tr>
<td>6</td>
<td>A</td>
</tr>
<tr>
<td>7</td>
<td>A</td>
</tr>
<tr>
<td>8</td>
<td>D</td>
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<tr>
<td>9</td>
<td>B</td>
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<tr>
<td>10</td>
<td>C</td>
</tr>
<tr>
<td>11</td>
<td>C</td>
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<tr>
<td>12</td>
<td>A</td>
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<tr>
<td>13</td>
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<tr>
<td>14</td>
<td>B</td>
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<tr>
<td>15</td>
<td>B</td>
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<tr>
<td>16</td>
<td>C</td>
</tr>
<tr>
<td>17</td>
<td>A</td>
</tr>
<tr>
<td>18</td>
<td>D</td>
</tr>
<tr>
<td>19</td>
<td>C</td>
</tr>
<tr>
<td>20</td>
<td>B</td>
</tr>
<tr>
<td>21</td>
<td>D</td>
</tr>
<tr>
<td>22</td>
<td>D</td>
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<tr>
<td>23</td>
<td>D</td>
</tr>
<tr>
<td>24</td>
<td>C</td>
</tr>
<tr>
<td>25</td>
<td>A</td>
</tr>
</tbody>
</table>
Section II

Question 26 (a) (i)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct classification of the type of data</td>
<td>1</td>
</tr>
</tbody>
</table>

Question 26 (a) (ii)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides a suitable question that is relevant to phone usage and requires a quantitative response</td>
<td>1</td>
</tr>
</tbody>
</table>

Question 26 (a) (iii)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides how a representative stratified sample could be obtained</td>
<td>1</td>
</tr>
</tbody>
</table>

Question 26 (b)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct area of the remaining shape OR provides a correct numerical expression</td>
<td>3</td>
</tr>
<tr>
<td>• Provides the correct areas of the semicircle and the trapezium OR provides correct numerical expressions for the areas of the semicircle and the trapezium</td>
<td>2</td>
</tr>
<tr>
<td>• Provides the correct area of the semicircle or the trapezium OR provides a correct numerical expression for either</td>
<td>1</td>
</tr>
</tbody>
</table>

Question 26 (c)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides a correct approximation of the time taken</td>
<td>2</td>
</tr>
<tr>
<td>• Shows some progress towards obtaining a correct approximation of the time taken</td>
<td>1</td>
</tr>
</tbody>
</table>
### Question 26 (d)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct day and time</td>
<td>2</td>
</tr>
<tr>
<td>• Provides the correct time in Greenwich (midnight at the end of Thursday/beginning of Friday) OR indicates that Santiago is 11 hours behind Perth</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 26 (e)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct total amount OR provides a correct numerical expression</td>
<td>2</td>
</tr>
<tr>
<td>• Provides the correct amount for the stamp duty OR provides a correct numerical expression</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 26 (f)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct total amount OR provides a correct numerical expression</td>
<td>3</td>
</tr>
<tr>
<td>• Provides two of the three charges OR provides correct numerical expressions</td>
<td>2</td>
</tr>
<tr>
<td>• Provides one of the three charges OR provides a correct numerical expression</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 27 (a)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct perimeter of the sector</td>
<td>2</td>
</tr>
<tr>
<td>• Provides a correct numerical expression for the perimeter of the sector</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 27 (b)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct amount of interest OR provides correct numerical expressions in the steps of the calculation</td>
<td>2</td>
</tr>
<tr>
<td>• Indicates the use of the correct present value interest factor in a correct approach to calculating the monthly repayment</td>
<td>1</td>
</tr>
</tbody>
</table>
### Question 27 (c) (i)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct interquartile range</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 27 (c) (ii)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides appropriate justification, using calculations, that 51 is not an outlier</td>
<td>2</td>
</tr>
<tr>
<td>• Correctly identifies the calculation needed to determine if a particular data value is an outlier</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 27 (d)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides a correct explanation of how the methods of payment differ</td>
<td>2</td>
</tr>
<tr>
<td>• Provides some information relevant to the method(s) of payment</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 27 (e) (i)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct $z$-score OR provides a correct numerical expression</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 27 (e) (ii)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct mark</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 27 (e) (iii)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct percentage of the marks</td>
<td>2</td>
</tr>
<tr>
<td>• Provides a clear indication of progress towards the correct answer, eg $\frac{1}{2} \times 68%$, $\frac{1}{2} \times 95%$</td>
<td>1</td>
</tr>
</tbody>
</table>
### Question 27 (f)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides a correct calculation for the relevant area</td>
<td>2</td>
</tr>
<tr>
<td>• Uses the scale given to provide appropriate approximations for the actual base length and/or perpendicular height of the triangular shaded area</td>
<td>1</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>• Shows a correct calculation for the area of a triangle with incorrect dimension(s)</td>
<td></td>
</tr>
</tbody>
</table>

### Question 28 (a)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the value of each pronumeral, ie $y = 3, x = 2\frac{1}{2}$ (or equivalent)</td>
<td>2</td>
</tr>
<tr>
<td>• Provides the value of either $x$ or $y$, ie $x = 2\frac{1}{2}$ (or equivalent) or $y = 3$</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 28 (b) (i)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides a correct numerical expression for the number of different numberplates</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 28 (b) (ii)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct probability OR provides a correct numerical expression OR</td>
<td>2</td>
</tr>
<tr>
<td>• Provides the correct probability from the possible number of numberplates obtained in (i)</td>
<td></td>
</tr>
<tr>
<td>• Provides the correct possible number of numberplates with ‘JO’ in the middle OR provides a correct numerical expression</td>
<td>1</td>
</tr>
</tbody>
</table>
### Question 28 (c)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct number of kilolitres</td>
<td>2</td>
</tr>
<tr>
<td>• Indicates the use of $V = Ah$, with consistent units</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 28 (d)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the value –$0.90$ OR provides another correct expression – numerical or in words, eg ‘a loss of 90 cents’</td>
<td>2</td>
</tr>
<tr>
<td>• Shows the correct use of signs (including for the entry fee) in setting up an appropriate calculation</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 28 (e)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides descriptions of three essential steps to conduct a plane table radial survey</td>
<td>3</td>
</tr>
<tr>
<td>• Provides descriptions of two essential steps to conduct a plane table radial survey</td>
<td>2</td>
</tr>
<tr>
<td>• Provides a description of one essential step to conduct a plane table radial survey</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 28 (f)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct value of $d$ OR provides a correct numerical expression for $d$</td>
<td>3</td>
</tr>
<tr>
<td>• Provides correct equal ratios of pairs of sides within the similar triangles</td>
<td>2</td>
</tr>
<tr>
<td>• Indicates identification of the pair of similar triangles within the diagram</td>
<td>1</td>
</tr>
</tbody>
</table>
### Question 29 (a)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct answer ( x = 2 \frac{2}{5} ) or equivalent</td>
<td>3</td>
</tr>
<tr>
<td>• Provides the statement ( 35x = 84 )</td>
<td>2</td>
</tr>
<tr>
<td>• Provides the statement ( 5x + 36 = 40x - 48 ) or equivalent</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 29 (b) (i)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct answer with correct units OR provides a correct numerical expression with correct units</td>
<td>3</td>
</tr>
<tr>
<td>• Attempts to find the volume of the tank by multiplying the perpendicular height by the area of the base obtained (ie uses the ( V = Ah ) approach)</td>
<td>2</td>
</tr>
<tr>
<td>• Provides a correct numerical expression for the area of the base of the tank</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 29 (b) (ii)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct amount of water lost</td>
<td>2</td>
</tr>
<tr>
<td>• Provides a correct numerical expression for the amount of water remaining in the tank</td>
<td>1</td>
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</table>

### Question 29 (c) (i)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
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</thead>
<tbody>
<tr>
<td>• Provides the correct tax payable</td>
<td>1</td>
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### Question 29 (c) (ii)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
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</thead>
<tbody>
<tr>
<td>• Provides a correct numerical expression for the gradient of the relevant section</td>
<td>1</td>
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### Question 29 (c) (iii)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct answer</td>
<td>1</td>
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</table>
### Question 29 (c) (iv)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides a correct equation (expressed with pronumerals or in words)</td>
<td>2</td>
</tr>
<tr>
<td>• Shows progress towards the expression of a correct equation</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 29 (d)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identifies at least two trends in the graph</td>
<td>2</td>
</tr>
<tr>
<td>• Provides some information relevant to trend(s) in the graph</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 30 (a) (i)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Plots and labels the relevant point correctly on the graph</td>
<td>1</td>
</tr>
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</table>

### Question 30 (a) (ii) (1)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct value of y</td>
<td>1</td>
</tr>
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</table>

### Question 30 (a) (ii) (2)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides a correct drawing of the line (indicates and joins two points on the line)</td>
<td>2</td>
</tr>
<tr>
<td>• Indicates one point on the line, eg (60, 57.4), (40, 41.4)</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 30 (a) (iii)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides a statement indicating that the line represents an equal life expectancy at birth for women and men</td>
<td>1</td>
</tr>
</tbody>
</table>
**Question 30 (a) (iv)**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides a statement indicating that for most of the countries represented, the life expectancy for women is higher than that for men</td>
<td>1</td>
</tr>
</tbody>
</table>

**Question 30 (a) (v)**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides a statement indicating that the life expectancy for women is higher for Country B than for Country A, while the life expectancy for men in the two countries is the same</td>
<td>1</td>
</tr>
</tbody>
</table>

**Question 30 (a) (vi)**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides descriptions of two possible reasons for the differences in life expectancy</td>
<td>2</td>
</tr>
<tr>
<td>• Provides a description of one possible reason for the differences in life expectancy</td>
<td>1</td>
</tr>
</tbody>
</table>

**Question 30 (b) (i)**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides the correct maximum amount that Xiang’s bank would have approved for her to borrow</td>
<td>4</td>
</tr>
<tr>
<td>• Shows substantial progress towards obtaining the correct solution, eg a suitable calculation for obtaining the amount in excess of $300 000 that Xiang’s bank would have approved</td>
<td>3</td>
</tr>
<tr>
<td>• Shows some progress towards obtaining the correct solution, eg links the maximum allowable loan repayment to selected value(s) from the spreadsheet for use in obtaining the solution</td>
<td>2</td>
</tr>
<tr>
<td>• Provides the correct value for the maximum allowable loan repayment</td>
<td>1</td>
</tr>
</tbody>
</table>
Question 30 (b) (ii)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identifies two relevant differences</td>
<td>2</td>
</tr>
<tr>
<td>• Provides an explanation for each difference with reference to rates and/or repayments</td>
<td></td>
</tr>
<tr>
<td>• Identifies one relevant difference with at least a limited explanation for the difference</td>
<td>1</td>
</tr>
</tbody>
</table>