|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Q | Scheme | | Marks | AOs | Pearson Progression Step and Progress descriptor |
| **1a** | Multiplies by the complex conjugate: | | **M1** | 2.2a | TBC |
| Simplifies to find:  Award mark for only  seen. | | **M1** | 1.1b |
| Recognises | | **M1** | 2.2a |
| Solves to find *p* = 2 or *p* = 8 | | **A1** | 1.1b |
|  | | **(4)** |  |  |
| **1b** | , | | **A1** | 1.1b | TBC |
|  | | **(1)** |  |  |
| **1c** | **Figure 1** | Argand diagram drawn with points clearly labelled. | **B1** | 1.1b | TBC |
|  | | **(1)** |  |  |
| (6 marks) | | | | | |
| Notes | | | | | |

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| Q | Scheme | Marks | AOs | Pearson Progression Step and Progress descriptor |
| **2a** | Multiplies by the complex conjugate: | **M1** | 2.2a | TBC |
| Finds *z* = 2 – 2i or states *a* = 2 and *b* = −2 | **A1** | 1.1b |
|  | **(2)** |  |  |
| **2b** | States or implies that the complex conjugate, *z* = 2 + 2i is also a root of the quadratic equation. | **M1** | 2.2a | TBC |
| Writes  Or  Writes  and | **M1** | 2.2a |
| Makes an attempt to multiply out the brackets. For example,  is seen.  Or  Calculates  and | **M1** | 1.1b |
| Simplifies to  or states *p* = 1, *q* = −4, *r* = 8  Accept any multiple of this solution, providing each constant is an integer. | **A1** | 1.1b |
|  | **(4)** |  |  |
| (6 marks) | | | | |
| Notes | | | | |