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| Q | Scheme | Marks | AOs | Pearson Progression Step and Progress Descriptor |
| **1a** | Multiplies by the complex conjugate:  | **M1** | 2.2a | 2ndUse the complex conjugate to divide two complex numbers |
| 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 | Transition StepWrite numbers in terms of i, the square root of minus 1 |
|  | **(1)** |  |  |
| **1c** | **Figure 1** | Argand diagram drawn with points clearly labelled. | **B1** | 1.1b | 2ndRepresent complex numbers on an Argand diagram |
|  | **(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 | 2ndUse the complex conjugate to divide two complex numbers |
| 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 | 2ndUnderstand that the complex roots of a quadratic equation with real coefficients occur as a conjugate pair |
| Writes  OrWrites  and  | **M1** | 2.2a |
| Makes an attempt to multiply out the brackets. For example,  is seen.OrCalculates  and  | **M1** | 1.1b |
| Simplifies to  or states *p* = 1, *q* = −4, *r* = 8Accept any multiple of this solution, providing each constant is an integer. | **A1** | 1.1b |
|  | **(4)** |  |  |
| (6 marks) |
| Notes |