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| Q | Scheme | Marks | AOs | Pearson Progression Step and Progress descriptor |
| **1** | Makes an attempt to factor all the quadratics on the left-hand side of the identity. | **M1** | 2.2a | 5thSimplify algebraic fractions. |
| Correctly factors each expression on the left-hand side of the identity: | **A1** | 2.2a |
| Successfully cancels common factors: | **M1** | 1.1b |
| States that  | **M1** | 1.1b |
| States or implies that *A* = 2, *B* = −9 and *C* = −18 | **A1** | 1.1b |
| (5 marks) |
| NotesAlternative methodMakes an attempt to substitute *x* = 0 (M1)Finds *C* = −18 (A1)Substitutes *x* = 1 to give *A* + *B* = −7 (M1)Substitutes *x* = −1 to give *A* − *B* = 11 (M1)Solves to get *A* = 2, *B* = −9 and *C* = −18 (A1) |

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| Q | Scheme | Marks | AOs | Pearson Progression Step and Progress descriptor |
| **2** | States that: | **M1** | 2.2a | 5thDecompose algebraic fractions into partial fractions − two linear factors. |
| Equates the various terms.Equating the coefficients of *x*: Equating constant terms:  | **M1\*** | 2.2a |
| Multiplies both of the equations in an effort to equate one of the two variables. | **M1\*** | 1.1b |
| Finds *A* = 8 | **A1** | 1.1b |
| Find *B* = −2 | **A1** | 1.1b |
| (5 marks) |
| NotesAlternative methodUses the substitution method, having first obtained this equation: Substitutes  to obtain *B* = 27 (**M1**)Substitutes  to obtain *A* = 43.2 (**M1**) |

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| Q | Scheme | Marks | AOs | Pearson Progression Step and Progress descriptor |
| **3** | States that:  | **M1** | 2.2a | 6thDecompose algebraic fractions into partial fractions − three linear factors. |
| Further states that: | **M1** | 1.1b |
| Equates the various terms.Equating the coefficients of *x*2: Equating the coefficients of *x*: Equating constant terms:  | **M1\*** | 2.2a |
| Makes an attempt to manipulate the expressions in order to find *A*, *B* and *C*. Obtaining two different equations in the same two variables would constitute an attempt. | **M1\*** | 1.1b |
| Finds the correct value of any one variable:either *A* = 2, *B* = 5 or *C* = −1 | **A1\*** | 1.1b |
| Finds the correct value of all three variables:*A* = 2, *B* = 5, *C* = −1 | **A1** | 1.1b |
| (6 marks) |
| NotesAlternative methodUses the substitution method, having first obtained this equation:Substitutes *x* = 4 to obtain 9*B* = 45 (**M1**)Substitutes *x* = 3 to obtain 8*A* = 16 (**M1**)Substitutes *x* = −5 to obtain −72*C* = 72 (**A1**) |

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| Q | Scheme | Marks | AOs | Pearson Progression Step and Progress descriptor |
| **4** | States that: | **M1** | 2.2a | 7thDecompose algebraic fractions into partial fractions − repeated factors. |
| Further states that:  | **M1** | 1.1b |
| Equates the various terms.Equating the coefficients of *x*2: Equating the coefficients of *x*: Equating constant terms:  | **M1** | 2.2a |
| Makes an attempt to manipulate the expressions in order to find *A*, *B* and *C*. Obtaining two different equations in the same two variables would constitute an attempt. | **M1** | 1.1b |
| Finds the correct value of any one variable:either *A* = 4, *B* = −2 or *C* = 6 | **A1** | 1.1b |
| Finds the correct value of all three variables:*A* = 4, *B* = −2, *C* = 6 | **A1** | 1.1b |
| (6 marks) |
| NotesAlternative methodUses the substitution method, having first obtained this equation:Substitutes *x* = 4 to obtain 13*B* = −26Substitutes  to obtain Equates the coefficients of *x*2: Substitutes the found value of *C* to obtain 3*A* = 12 |

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| Q | Scheme | Marks | AOs | Pearson Progression Step and Progress descriptor |
| **5** | Makes an attempt to set up a long division.For example:  is seen. | **M1** | 2.2a | 6thDecompose algebraic fractions into partial fractions − three linear factors. |
| Award 1 accuracy mark for each of the following: seen, 4*x* seen, −6 seen. | **A3** | 1.1b |
| Equates the various terms to obtain the equation:Equating the coefficients of *x*: Equating constant terms:  | **M1** | 2.2a |
| Multiplies one or or both of the equations in an effort to equate one of the two variables. | **M1** | 1.1b |
| Finds *W* = −1 and *V* = 2. | **A1** | 1.1b |
| (7 marks) |
| **Notes** |

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| Q | Scheme | Marks | AOs | Pearson Progression Step and Progress descriptor |
| **6** | Equating the coefficients of *x*4: *A* = 5 | **A1** | 2.2a | 6thSolve problems using the remainder theorem linked to improper algebraic fractions. |
| Equating the coefficients of *x*3: *B* = −4 | **A1** | 1.1b |
| Equating the coefficients of *x*2: 2*A* + *C* = 17, *C* = 7 | **A1** | 1.1b |
| Equating the coefficients of *x*: 2*B* + *D* = −5, *D* = 3 | **A1** | 1.1b |
| Equating constant terms: 2*C* + *E* = 7, *E* = −7 | **A1** | 1.1b |
| (5 marks) |
| **Notes** |

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| Q | Scheme | Marks | AOs | Pearson Progression Step and Progress descriptor |
| **7** | Makes an attempt to set up a long division.For example:  is seen.The ‘0*x*’ being seen is not necessary to award the mark. | **M1** | 2.2a | 5thDecompose algebraic fractions into partial fractions − two linear factors. |
| Long division completed so that a ‘1’ is seen in the quotient and a remainder of 25*x* + 32 is also seen. | **M1** | 1.1b |
| States   | **M1** | 1.1b |
| Equates the various terms.Equating the coefficients of *x*: Equating constant terms:  | **M1** | 2.2a |
| Multiplies one or both of the equations in an effort to equate one of the two variables. | **M1** | 1.1b |
| Finds  | **A1** | 1.1b |
| Finds  | **A1** | 1.1b |
| (7 marks) |
| Notes**Alternative method**Writes  as States Substitutes  to obtain: Substitutes  to obtain: Equating the coefficients of *x*2:  |