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|---|---|---|---|---|---|---|---|
| **1**<br>**2** | | | $\int \frac{1}{y}\,\mathrm{d}y = \int \frac{20x-35}{2x^3-3x^2-11x+6}\,\mathrm{d}x$ | **M1** | **1.1** | Separate variables | Correct process to deal with algebraic fractions, with BOD on integral notation |
| | | | $\mathrm{f}(x) = 2x^3-3x^2-11x+6$<br>$= (x-3)(2x^2+3x-2)$ | **M1** | **3.1a** | Attempt to factorise cubic | Possibly **BC**, so correct factorised cubic implies M1A1<br>If incorrect factorised cubic then method must be seen for M1<br>Allow M1A0 for<br>$(x-3)(x+2)(x-0.5)$ |
| | | | $= (x-3)(x+2)(2x-1)$ | **A1** | **1.1** | Correct factorised cubic | |
| | | | $\frac{20x-35}{2x^3-3x^2-11x+6} = \frac{A}{x+2} + \frac{B}{x-3} + \frac{C}{2x-1}$ | **M1** | **1.1a** | Attempt partial fractions, using their 3 linear factors | Must be correct structure, attempting at least one numerator |
| | | | $= -\frac{3}{x+2} + \frac{1}{x-3} + \frac{4}{2x-1}$ | **A1** | **1.1** | Obtain any one correct fraction www | Possibly implied by eg $A = -3$ |
| | | | | **A1** | **1.1** | Obtain fully correct partial fractions | Could be implied by $A = -3$ etc, if subsequent slip when writing out partial fractions |
| | | | $\int \frac{1}{y}\,\mathrm{d}y = \ln\lvert y \rvert$ | **B1** | **1.1** | Correct integration of $\frac{1}{y}$ | Condone no modulus sign |

| Question | | | Answer | Marks | AO | Guidance | |
|---|---|---|---|---|---|---|---|
| | | | $-3\ln\lvert x+2\rvert + \ln\lvert x-3\rvert + 2\ln\lvert 2x-1\rvert + \ln A$ | **A1FT** | **1.1** | Obtain correct integral following their 3 linear partial fractions | Condone no constant of integration<br>Condone brackets and not modulus<br>FT from point that partial fractions were credited, and not on subsequent errors |
| | | | $y = \dfrac{A(x-3)(2x-1)^2}{(x+2)^3}$ | **A1** | **1.1** | Obtain correct equation | Any correct form not involving ln<br>May be $e^c$ not *A*, but A0 if fraction $+c$<br>Could have $(x+2)^{-3}$ in a product |
| | | | | **[9]** | | | |