Partial Fractions in Integration - Edexcel Past Exam Questions

1. (a) Express $\dfrac{5x+3}{(2x-3)(x+2)}$ in partial fractions. **(3)**

    (b) Hence find the exact value of $\displaystyle\int_{2}^{6}\dfrac{5x+3}{(2x-3)(x+2)}\,dx$, giving your answer as a single logarithm. **(5)**

    Jun 05 Q3

2. $$\dfrac{2(4x^2+1)}{(2x+1)(2x-1)} \equiv A + \dfrac{B}{(2x+1)} + \dfrac{C}{(2x-1)}.$$

    (a) Find the values of the constants A, B and C. **(4)**

    (b) Hence show that the exact value of $\displaystyle\int_{1}^{2}\dfrac{2(4x^2+1)}{(2x+1)(2x-1)}\,dx$ is $2 + \ln k$, giving the value of the constant k. **(6)**

    June 07 Q4

3. $$\mathrm{f}(x) = \dfrac{4-2x}{(2x+1)(x+1)(x+3)} = \dfrac{A}{(2x+1)} + \dfrac{B}{(x+1)} + \dfrac{C}{(x+3)}.$$

    (a) Find the values of the constants A, B and C. **(4)**

    (b) (i) Hence find $\displaystyle\int \mathrm{f}(x)\,dx$. **(3)**

    (ii) Find $\displaystyle\int_{0}^{2} \mathrm{f}(x)\,dx$ in the form $\ln k$, where k is a constant. **(3)**

    June 09 Q3

4. (a) Express $\dfrac{5}{(x-1)(3x+2)}$ in partial fractions. **(3)**

    (b) Hence find $\displaystyle\int \dfrac{5}{(x-1)(3x+2)}\,dx$, where $x > 1$. **(3)**

    Jan 11 Q3(edited)