Algebraic Methods: Partial Fractions - Edexcel Past Exam Questions

1. $f(x) = \dfrac{3x^2 + 16}{(1-3x)(2+x)^2} = \dfrac{A}{(1-3x)} + \dfrac{B}{(2+x)} + \dfrac{C}{(2+x)^2}$, $\; |x| < \frac{1}{3}$.

   Find the values of A and C and show that $B = 0$. **(4)**

   Jan 06 Q5

2. $f(x) = \dfrac{3x-1}{(1-2x)^2}$, $\quad |x| < \frac{1}{2}$.

   Given that, for $x \neq \frac{1}{2}$, $\;\dfrac{3x-1}{(1-2x)^2} = \dfrac{A}{(1-2x)} + \dfrac{B}{(1-2x)^2}$, where A and B are constants,

   Find the values of A and B. **(3)**

   June 06 Q2

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

   Jan 07 Q4

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

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

   June 07 Q4

5. Express $\dfrac{2}{4-y^2}$ in partial fractions. **(3)**

   June 08 Q7

6. $f(x) = \dfrac{27x^2 + 32x + 16}{(3x+2)^2(1-x)}, \quad |x| < \dfrac{2}{3}.$

Given that $f(x)$ can be expressed in the form

$$f(x) = \frac{A}{(3x+2)} + \frac{B}{(3x+2)^2} + \frac{C}{(1-x)},$$

Find the values of B and C and show that $A = 0$. **(4)**

Jan 09 Q3

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

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

June 09 Q3

8. $\dfrac{2x^2 + 5x - 10}{(x-1)(x+2)} \equiv A + \dfrac{B}{x-1} + \dfrac{C}{x+2}.$

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

June 10 Q5

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

Jan 11 Q3

10. $\dfrac{9x^2}{(x-1)^2(2x+1)} = \dfrac{A}{(x-1)} + \dfrac{B}{(x-1)^2} + \dfrac{C}{(2x+1)}.$

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

June 11 Q1