**Algebraic Methods Tutorial Questions**

**Q1.**

Express



as a single fraction in its simplest form.

**(4)**

**(Total 4 marks)**

**Q2.**

 Express  in partial fractions.

**(3)**

**Q3.**



Given that



find the values of the constants *A* and *B*.

**(4)**

**Q4.**

Express



as a single fraction in its simplest form.

**(4)**

**(Total 4 marks)**

**Q5.**

f(*x*) = 4*x*3 – 12*x*2 + 2*x* – 6

(a)   Use the factor theorem to show that (*x* – 3) is a factor of f(*x*).

**(2)**

(b)   Hence show that 3 is the only real root of the equation f(*x*) = 0

**(4)**

**(Total for question = 6 marks)**

**Q6.**

Express $\frac{24x^{2}+39x+12}{(x-1)(3x+2)^{2}}$ in partial fractions.

**Q7.**

Given that



find the values of the constants *a*, *b*, *c*, *d* and *e*.

**(4)**

**(Total 4 marks)**

**Q8.**

f(x) = 3*x*3 + 2a*x*2 – 4*x* + 5*a*

Given that (*x* + 3) is a factor of f(*x*), find the value of the constant *a*.

**(Total for question = 3 marks)**