

2005 ~~1~~ (a) Express $\frac{8x^2 + x - 5}{(2x-1)^2(x+2)}$ in partial fractions.

[4]

(b) Find $\int \frac{8x^2 + x - 5}{(2x-1)^2(x+2)} dx$.

[3]

2006 ~~1~~ Given that

$$f(x) = \frac{2x^2 + 4}{(x-2)^2(x+4)},$$

[4]

(a) express $f(x)$ in partial fractions,

[3]

(b) hence find the value of $f'(0)$.

[4]

2007 1. (a) Express $\frac{x+3}{x^2(x-1)}$ in terms of partial fractions.

[2]

(b) Find $\int \frac{x+3}{x^2(x-1)} dx$.

2008 ~~1~~ Given that

$$f(x) = \frac{1}{x^2(2x-1)},$$

[4]

(a) express $f(x)$ in partial fractions,

[3]

(b) find $\int f(x) dx$.

2009 ~~1~~ Given that

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

[4]

(a) express $f(x)$ in terms of partial fractions,

(b) evaluate

$$\int_0^1 f(x) dx,$$

giving your answer correct to three decimal places.

[4]