

Using Partial Fractions

## Example

1.

a) Express  $\frac{4-5x}{(1+x)(2-x)}$  as partial fractions.

b) Hence show that the cubic approximation of  $\frac{4-5x}{(1+x)(2-x)}$  is  $2 - \frac{7}{2}x + \frac{11}{4}x^2 - \frac{25}{8}x^3$

c) State the range of values of  $x$  for which the expansion is valid.



## Test Your Understanding

[C4 June 2010 Q5]

10.

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

- (a) Find the values of the constants  $A$ ,  $B$  and  $C$ . (4)
- (b) Hence, or otherwise, expand  $\frac{2x^2 + 5x - 10}{(x-1)(x+2)}$  in ascending powers of  $x$ , as far as the term in  $x^2$ . Give each coefficient as a simplified fraction. (7)