



## Rational Functions Mixed Exam Questions

Attempt these exam questions independently showing full and clear solutions.  
Check each answer as you go against the exam board mark scheme.

1.

Express  $x + \frac{1}{1-x} + \frac{2}{1+x}$  as a single fraction, simplifying your answer.

[3]

2.

Express  $\frac{1+4x}{(1+x)(1+3x)}$  in partial fractions.

(3 marks)

3.

Express  $\frac{1}{(3-2x)(1-x)^2}$  in the form  $\frac{A}{3-2x} + \frac{B}{1-x} + \frac{C}{(1-x)^2}$ .

(4 marks)

4.

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

Find the values of the constants  $A$ ,  $B$  and  $C$ .

(4)

5.

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

Express  $f(x)$  as a single fraction in its simplest form.

(4)