1 (a) Simplify $\dfrac{x-1}{5(x-1)^2}$

....

(1)

(b) Factorise fully $50 - 2y^2$

....

(2)

(Total for Question 1 is 3 marks)

2 Simplify fully $\dfrac{3x^2 - 8x - 3}{2x^2 - 6x}$

....

(Total for Question 2 is 3 marks)

3 (a) Express $\dfrac{x}{x+2} + \dfrac{2x}{x-4}$ as a single fraction in its simplest form.

(3)

(b) Expand and simplify $(x-3)(2x+3)(4x+5)$

(3)

(Total for Question 3 is 6 marks)

4 $2 - \dfrac{x+2}{x-3} - \dfrac{x-6}{x+3}$ can be written as a single fraction in the form $\dfrac{ax+b}{x^2-9}$

where a and b are integers.

Work out the value of a and the value of b.

$a = \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots$

$b = \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots$

(Total for Question 4 is 4 marks)

$2 - \dfrac{x+2}{x-3} - \dfrac{x-6}{x+3}$

5 Show that $6 + \left[(x+5) \div \dfrac{x^2 + 3x - 10}{x - 1} \right]$ simplifies to $\dfrac{ax - b}{cx - d}$ where a, b, c and d are integers.

(Total for Question 5 is 4 marks)

6 Show that $\dfrac{4x + 3}{2x} + \dfrac{3}{5}$ can be written in the form $\dfrac{ax + b}{cx}$ where a, b and c are integers.

(Total for Question 6 is 3 marks)

7 Show that $\dfrac{6x^3}{(9x^2 - 144)} \div \dfrac{2x^4}{3(x-4)}$ can be written in the form $\dfrac{1}{x(x+r)}$ where r is

an integer.

(Total for Question 7 is 3 marks)

8 (a) Write $\dfrac{4x^2 - 9}{6x + 9} \times \dfrac{2x}{x^2 - 3x}$ in the form $\dfrac{ax + b}{cx + d}$ where a, b, c and d are integers.

....

(3)

(b) Express $\dfrac{3}{x + 1} + \dfrac{1}{x - 2} - \dfrac{4}{x}$ as a single fraction in its simplest form.

....

(3)

(Total for Question 8 is 6 marks)

9 (a) Write $\dfrac{5}{x+1} + \dfrac{2}{3x}$ as a single fraction in its simplest form.

....

(2)

(b) Factorise $(x+y)^2 + 3(x+y)$

....

(1)

(Total for Question 9 is 3 marks)

10 Show that $\dfrac{7x-14}{x^2+4x-12} \div \dfrac{x-6}{x^3-36x}$ simplifies to ax where a is an integer.

(Total for Question 10 is 4 marks)

11 $\dfrac{2x+3}{x-5} + \dfrac{x-4}{x+5} - 3$ can be written in the form $\dfrac{ax+b}{x^2-25}$ where a and b are integers.

Work out the value of a and the value of b.
You must show all your working.

$a = $ ....

$b = $ ....

11

(Total for Question 11 is 3 marks)

12 Show that $\dfrac{3x}{x+2} - \dfrac{2x+1}{x-2} - 1$ can be written in the form $\dfrac{ax+b}{x^2-4}$

where a and b are integers.

(Total for Question 12 is 4 marks)