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

.....

(3)

(Total for Question 1 is 3 marks)

2 Show that $\frac{3x}{x+2} - \frac{2x+1}{x-2} - 1$ can be written in the form $\frac{ax+b}{x^2-4}$ where a and b are integers.

(Total for Question 2 is 4 marks)

3 Solve $\frac{1}{x} - \frac{1}{x+1} = 4$

Give your answer in the form $a \pm b\sqrt{2}$ where a and b are fractions.

.....

(Total for Question 3 is 5 marks)

4 $\frac{2x+3}{x-5} + \frac{x-4}{x+5} - 3$ can be written in the form $\frac{ax+b}{x^2-25}$ 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 = ...

(Total for Question 4 is 3 marks)

5 Solve $\dfrac{1}{x+4} + \dfrac{3}{2-2x} = 1$

.....

(Total for Question 5 is 4 marks)