Functional Mathematics

Task 1 - **Basic Algebra**
Due date:

1. Solve the following system of linear equations:

$$\frac{5}{x-1}+\frac{1}{y-2}=2$$

$$\frac{6}{x-1}+\frac{3}{y-2}=1$$

[2 marks]

2. Solve the following quadratic equation using the Quadratic Formula:

$6x^2-11x+7=0$ [2 marks]

3. Solve the following inequalities:
   a) $\frac{-y}{3} \leq 7$
   b) $|3x|+4>7$

[2 marks]

4. Solve the following functions:
   a) Given $g(x) = \frac{(2x-5)}{3}$; find $g(-2)$, $g(2)$, $g(3a)$
   b) Given $g(x) = -(x+2)^2-1$; find $g(5)$, $g(a)$

[2 marks]

5. Determine the inverse of the following function:

$$h(x)=\frac{(3x-4)}{(5x-2)}$$

[2 marks]

Bonus Task

6. Solve the following inequality:
   $3x^2-5x-2 \geq 0$ [2.5 marks]

7. Determine the inverse of the following function:
   $g(x)=2(x+1)^2+3$ [2.5 marks]