period 5
Please read before taking the assessment. Unless otherwise mentioned in the questions,

a) all functions are real functions.

b) all solutions to an equation belong to complex numbers.

c) all radicals have to be rationalized and simplified to their simplest forms

d) all graphs need to identify the transformation compare to its parent function, the domains, the ranges and the asymptotes whenever it applies.

e) there are 46 points in the assessment, 46 points = 100%

1.[2 points] Solve $\dfrac{x}{x+2} = \dfrac{2x}{x+3} - 1$

2. [4 points]Find the sum of the expressions $\dfrac{x^2 - 2x - 8}{x^2 + 7x + 10} + \dfrac{4x^2 + 11x - 3}{x^2 - x - 12}$

3. [4 points each]Simplify the expressions:

a) $\dfrac{\sqrt[9]{64}}{\sqrt[3]{3}} - \dfrac{2}{\sqrt[3]{6}}$

b) $\dfrac{\sqrt[3]{64}}{\sqrt[4]{81}} + \dfrac{\sqrt[4]{64}}{\sqrt[8]{16}}$

4. [2 points]Find quotient of $\dfrac{2e^2 - 3e - 5}{e + 1}$

5. [6 points each]Graph a) $y = \dfrac{x}{x+2}$ b) $y = 2\sqrt{x+1} + 3$ c) $y = -2^{x-3} + 4$

6. [4 points each] Let $f(x) = 2x + 1$, $g(x) = 3x$, $h(x) = \sqrt{x+2}$

a) Solve $f \circ h(x) = g \circ h(x)$ b) Find $m^{-1}(x)$ if $m(x) = h \circ (\dfrac{f}{g})(x)$ c) Evaluate $m^{-1}(1) \cdot m(1)$