

UFID: \_\_\_\_\_

Solve 3 of 5 questions below in order to get your full mark. Please notice that the difficulty of each question depends on how students handle it. I only consider 3 questions for your final grade. Using calculators are forbidden and will be considered as an act of cheating. You have 15 minutes for this quiz. Good luck to all of you!

1 Find the domain of expression.

$$\frac{x^2 - 2x - 3}{x^2 - 5x + 6} \quad (1)$$

2 Perform addition or subtraction and simplify

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

Hint : the identity  $(a + b)(a^2 - ab + b^2) = a^3 + b^3$  might help you!

3 Solve the equation.

$$\sqrt[3]{3x + 1} - 5 = 0 \quad (3)$$

4 Use the Quadratic formula to solve the equation.

$$x^2 + 7x + 10 = 0 \quad (4)$$

5 Factor the expression by removing common factor with lesser exponent.

$$4x^2((x^3 + 2x))^3 + 27x^5((x^3 + 2x))^5 \quad (5)$$