

Last Name: \_\_\_\_\_

First Name: \_\_\_\_\_

Student ID: \_\_\_\_\_

## Quiz 1 (A)

**Question 1.** (3 marks) Rationalize the denominator in the expression:

$$\sqrt[3]{\frac{2a}{3b}}$$

**Question 2.** (3 marks) Simplify the expression (express your answer with positive exponents only):

$$\left(\frac{a^{-3}}{b^{-2}}\right)^2 \left(\frac{b}{a}\right)^4$$

**Question 3.** (6 marks) Factor the following completely:

(a)  $7x^2 - 27x - 4$

(b)  $x^3 - 3x^2 - 4x + 12$

(c)  $x^6 - 64$

**Question 4.** (8 marks) Simplify the following expressions:

(a)  $\frac{b - 9b^{-1}}{b + 4 + 3b^{-1}}$

(b)  $\frac{1}{1 - \frac{1}{1+a}} + \frac{1}{1 - \frac{1}{1-a}}$