

Name : _____ ID. # : _____ SER. # : _____

1. Simplify the following expressions:

$$(a) \frac{6x^2 + 13xy + 6y^2}{4x^2 - 9y^2} \div \frac{3x^2 - xy - 2y^2}{2x^2 + xy - 3y^2} \quad (3.5 \text{ pts})$$

$$(b) \frac{b a^{-1} - a b^{-1}}{a^3 - b^3} \quad (3.5 \text{ pts})$$

2. (a) Determine whether the following equation is an identity, a conditional equation, or a contradiction: $-|-x - 1| + 5 = 7$ (explain) (2 pts)

(b) Solve the equation: $|x - 1| + |x + 1| = 4$

(4 pts)

3. (a) Find the real and imaginary parts of the complex number:
 $(1 - 2i)^3 - i(3 + 2i)(3 - 2i)$

(3 pts)

(b) Solve the quadratic equation: $2ix^2 + 3x - i = 0$

(3 pts)