Concordia University
Department of Mathematics & Statistics

Course: MATH 206/4 2013-2014

Examination: Midterm Test **Date & Time: March 2nd, 2PM**

Instructors: [redacted] **Course Examiner:** [redacted]

Special Instructions

- **Solve all problems and, in each case, clearly indicate which problem you are solving.**
- **Clearly identify your answers; if you don't show or explain your work, you cannot get full marks.**
- **Only approved calculators are permitted.**

Marks

[3] 1. The expression $(\sqrt{5}-2)^2$ can be written as $a-b\sqrt{c}$ where a, b and c are whole numbers. Find the values of a, b and c.

$(a-b)^2$

[3] 2. Simplify the expression $\sqrt{72} \times 3\sqrt{2}$.

[3] 3. Rationalize the denominator of the expression and simplify common factors:

$$\frac{2}{1-\sqrt{5}}$$

[3] 4. Remove the parentheses and combine like terms:

$$2(5x-2)+x^2-x(x+4)$$

[3] 5. Rewrite as a single fraction; combine like terms in the numerator and denominator.

$$\frac{2}{x}-\frac{x+1}{x^2-6}$$

[6] 6. Factor the polynomials completely:

a. $2x^2-5x+3$ b. $16x^4-81$