44

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CONCORDIA UNIVERSITY
Department of Mathematics & Statistics

Course	Number		Section(s)
Mathematics	206/4		All
Examination	Date	Time	Pages
Final	April 2015	3 Hours	2
Instructors			Course Examiner
A. Bellahnid, K. Duelund, K. Kefalas, S. Dey			D. Sen

Special Instructions

▷ Only approved calculators are allowed.

MARKS

[4] 1. Simplify the expressions below. Do not use a calculator.

(a) $4\sqrt{12}+5\sqrt{27}-\sqrt{75}$ (b) $\frac{1}{3}\log_3 27 - \log_3(3^3-18)$

[4] 2. Rationalize the denominator:

(a) $\frac{5}{2\sqrt{3}}$ (b) $\frac{2-\sqrt{5}}{2+3\sqrt{5}}$

[6] 3. Simplify the expressions:

(a) $5x(x^3-5x^2)-x^2(x^2-7x-5)$ (b) $\frac{x^3-8}{x^3-2x^2}$

[8] 4. Factor the polynomials completely:

(a) $4x^2-16x+15$ (b) $1-8x^2-9x^4$

[4] 5. Perform the arithmetic operations and simplify:

$$\frac{4x}{x^2-4}-\frac{2}{x^2+x-6}$$

[9] 6. Solve the equations:

(a) $\frac{2x}{x^2-4}=\frac{4}{x^2-4}-\frac{3}{x+2}$ (b) $\log_3(3x-1)=2$ (c) $3^{x^3}=9^x$

[8] 7. Solve the inequalities, express your answer using set notation or interval notation:

(a) $-1\le\frac{3-5x}{2}\le 9$ (b) $\left|\frac{2x+3}{3}-\frac{1}{2}\right|<1$