MA 153	EXAM 1	SPRING 2000
Name:		
Student ID:		
Instructor:		
Class Hour:		

## **Instructions:**

- (1) Please fill in all the above information and write your name on the top of each of the 4 exam pages.
- (2) The point value on each problem appears to the left of the problem.
- (3) You must show sufficient work to justify all answers. Correct answers with inconsistent work may not be given credit.
- (4) No partial credit will be given on problems 1-3. Partial credit may be obtained on problems 4-9 provided sufficient work is shown.
- (5) Circle the letter of the correct answer in problems 1-3 and write the answers to problems 4-9 in the spaces provided.
- (6) No books or papers are allowed. Calculators may be used where appropriate.
- (7) The exam is self-explanatory. Please do *not* ask the instructors to interpret any of the exam questions.

Page	Points	Max Possible
1		24
2		28
3		22
4		26
Total		100

Exam 1

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

Circle your answer for problems 1-3. You must show correct work to receive credit.

(8 pts) 1. Find the difference and express as a polynomial:  $(3x^3 - x + 5) - (3x^2 - 9x - 8x^3 + 2)$ 

A.  $11x^{3} - 3x^{2} + 8x + 3$ B.  $8x^{3} + 8x + 3$ C.  $5x^{3} + 3x^{2} + 10x - 7$ D.  $11x^{3} + 3x^{2} - 10x + 7$ E. None of the above

(8 pts) 2. Simplify:

$$\frac{\frac{1}{a} - b}{\frac{1}{b} - a}$$

A. 
$$\frac{(1-ab)^2}{ab}$$
  
B. 1  
C. 
$$\frac{b(1-b)}{a(1-a)}$$
  
D. 0  
E. 
$$\frac{b}{a}$$

(8 pts) 3. The area of a trapezoid is given by the formula  $A = \frac{h(b + c)}{2}$ . Solve this formula for b.

A. 
$$b = 2A - h - c$$
  
B.  $b = \frac{2A - c}{h}$   
C.  $b = \frac{hA + hc}{2}$   
D.  $b = \frac{h - 2Ac}{2A}$   
E.  $b = \frac{2A - hc}{h}$ 

Exam 1

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Place your answer in the space provided. You must show your work to receive credit.

(9 pts) 4. Simplify completely. Eliminate negative exponents in your answer.  $(x \quad 0, y \quad 0)$ 

$$\frac{(4x^2 y^2)(2y)^{-3}}{xy^{-4}}$$

(19 pts) 5. Factor each of the following as much as possible:

(10 pts) (a)  $16x^6y - 81x^2y$ 

(9 pts) (b)  $3x^3 + 6x^2 - 15x - 30$ 

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Place your answer in the space provided. You must show your work to receive credit.

(12 pts) 6. Divide and simplify completely. (Leave your answer in factored form.)

$$\frac{x^2 - 7x + 12}{2x^2 - 7x - 4} \div \frac{x - 5}{2x^2 - 5x - 3}$$



(10 pts) 7. Solve for x.

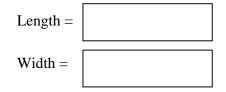
$$\frac{4}{x-1} - \frac{9}{x+1} = \frac{3x+2}{x^2-1}$$



Exam 1

Place your answer in the space provided. You must show your work to receive credit.

(14 pts) 8. The length of a rectangular garden is 5 feet longer than three times the width. If the owner plans to use 238 feet of fencing to enclose the garden, find the dimensions of the garden. (Draw and label a picture, set up an equation, and solve.)



(12 pts) 9. A motorboat can maintain a constant speed of 16 miles per hour in still water. The boat makes a trip upstream to a certain point in  $\frac{2}{5}$  of an hour and then travels back to the starting point downstream in  $\frac{1}{4}$  of an hour. Find the rate of the current. Round your answer to the nearest tenth.

(Name a variable, set up an equation, and solve.)

Rate of current =