MA 111 **EXAM 3** **FALL 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 will not be given credit. There is no credit given on any
    problem for guessing correctly. On all word problems, you must set up an
    algebraic equation(s).**
(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		24
4		24
Total		100

Name: _____

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

(8 pts) 1. Find $g(-3)$ if $g(x) = \dfrac{x^2 + x - 6}{x^2 - 2}$

           A.   0

           B.   9

           C.   undefined

           D. $-\dfrac{9}{4}$

           E.   None of the abov

(8 pts) 2. Find the remainder if $2x^3 - x^2 + 4$ is divided by $x + 3$.

           A.   49

           B. -59

           C.   2

           D. -17

           E.   None of the abov

(8 pts) 3. Subtract and simplify your answer completely:

$$\frac{5}{2a - 3} - \frac{2}{a}$$

Name: _____

A. $\dfrac{4}{2a-3}$

B. $\dfrac{a-3}{a(2a-3)}$

C. $\dfrac{3}{a-3}$

D. $\dfrac{a-6}{a(2a-3)}$

E. $\dfrac{a+6}{a(2a-3)}$

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

(16 pts) 4. Solve for x:

(6 pts) (a) $x^2 - 5x = 0$

$x =$ ⬚

(10 pts) (b) $\dfrac{4}{x} + \dfrac{5}{x-3} = \dfrac{7x}{x^2 - 3x}$

$x =$ ⬚

(12 pts) 5. Divide and simplify completely. Leave your answer in factored form.

2

$$\dfrac{x^2 + x}{x^2 - 2x - 3} \div \dfrac{x^2 - 1}{x^2 - 4x + 3}$$

Name: _____

$$\boxed{}$$

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

(14 pts) 6. Factor each of the following completely:

(8 pts) (a) $12x^4y^3 - 3x^2y^7$

$$\boxed{}$$

(6 pts) (b) $4a^2 + 4ab - ac - bc$

$$\boxed{}$$

3

(10 pts) 7. Simplify each of the following. Assume all variables represent positive values.
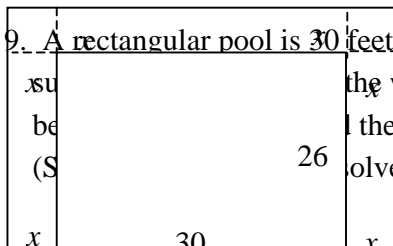
Name: _____

(4 pts) (b) $\sqrt{(x+4)^6}$

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

(12 pts) 8. The rate a canoeist can paddle in still water is 6 miles per hour. A canoeist paddles 5 miles downstream in the same amount of time it takes him to go 3 miles upstream. Find the rate of the current of the river. (Name the variable, set up an equation, and solve.)

rate of current =

(12 pts) 9. A rectangular pool is 30 feet by 26 feet. A walkway of uniform width, x feet, is to the walkway is completed, the total area (pool plus walkway) will be the width of the walkway.
(Solve.)

26

x 30

Name: _____

width of walkway =