Math 100 Exam I

7:30pm–8:30pm, Tuesday September 11, 2001

Recitation Instructor:_____

Recitation Day/Time:_____ **Name:**_____

No books or notes are allowed. Please read the problems carefully and do **all** you are asked to do. **You must show your work!** You can use the back page as scratch paper and do the problems at the space provided.

Total/100	page1/30	page2/40	page3/30

1. (10pts) simplify using rational exponents only (x is positive and y could be any real number).
$\sqrt[4]{16x^3y^2} =$

2. (10pts) Simplify (x could be any nonzero real number)
$\dfrac{(2x^2)^{3/2}}{2^{1/2}x^4} =$

3. (10pts) Multiply the polynomial
$(x^2 - x + 1)(x^2 + x + 1) =$

4. (10pts) Factor
(a). $2x^2 + x - 15 =$

(b). $x^2 - 10x + 25 =$

5. (10pts) Simplify $\dfrac{x^3 + 5x^2 + 6x}{x^2 - 4} =$

6. (10pts) Solve for x and check your solution. $\dfrac{3}{x(x+1)} + \dfrac{7}{x+1} = \dfrac{3}{x}$.

7. (10pts) An auto dealer has \$600,000 inventory in two types of cars, compact and mid-size. The profit on compact cars is 24% and the profit on mid-size cars is 28%. The profit for the entire stock was 25%. How much was invested in each type of cars?

8. (10pts) Solve the equation $x^2 + 3x = 9$ for *exact* solution.

9. (10pts) A bedroom is 3 feet longer than it is wide and has an area of 154 square feet. Find the dimensions of the room.

10 (10pts) Perform the operation and simply the fractions:

(a) $\dfrac{2}{x^2 - x - 2} + \dfrac{10}{x^2 + 2x - 8}$

(b) $\dfrac{\left(\dfrac{x^2 - 1}{x}\right)}{\left[\dfrac{(x-1)^2}{x}\right]}$