EXAM 3 - MATH 102 Friday, November 11

YOUR NAME:_____ George Voutsadakis

Read each problem **very carefully** before starting to solve it. Each problem is worth 10 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. (a) Solve the equation $(x-6)(x+1)=18$.

(b) Find the domain of the rational function

$$f(x)=\frac{x^2-9}{x^3-2x^2-x+2}.$$

2. Perform the operations and reduce to lowest terms:

(a) $\dfrac{4x-2}{x^2-5x} \div \dfrac{2x^2+9x-5}{x^2-25} =$

(b) $\dfrac{10}{x^2+x-6} - \dfrac{2}{x-2} =$

3. Simplify the complex fraction and reduce to lowest terms $\dfrac{x - \dfrac{x+6}{x+2}}{x - \dfrac{4x+15}{x+2}}$.

4. Perform the division $(6x^3 - 7x^2 + 5x + 6) \div (3x - 2)$ and write your answer in the form Quotient $+ \dfrac{\text{Remainder}}{\text{Divisor}}$.

5. Solve the rational equation $\dfrac{x-4}{x^2+2x-15} = 2 - \dfrac{2}{x-3}$.