V2

1	2	3	4	5	6

Last Name:_______________

First Name:_______________

ID:_______________ Section:____

Math 1051 Midterm #3. April 18, 2002

Attention! Please, note that this is the closed book test. You are not allowed to use a graphing calculator. Simple calculators are allowed. Please, show all important steps in you solution but do not make your solution excessively long.

1a. Find the power function that the graph of the polynomial

$$P(x) = (3 - 2x^3)(x^2 + x - 1)(5 - x)$$

resembles for large values of x.

- ☐ $2x^7$;
- ☐ $2x^6$;
- ☐ $-30x^7$;
- ☐ $-30x^3$;
- ☐ 15.

1b. Which from the following functions does NOT have the inverse functions

- ☐ $1 - x^2$, $x < 0$;
- ☐ $|x|$, $x < 0$;
- ☐ $\ln x$, $x > 0$;
- ☐ e^x, $x < 0$;
- ☐ $(x+1)^2$, $x < 0$.

1c. The vertex of the quadratic function

$$f(x) = 2x^2 - 6x - 1$$

☐ is $(0, -3/2)$;

☐ is $(3/2, -2/3)$;

☐ is $(2, -11/2)$;

☐ is $(3, -10)$;

☐ is $(3/2, -11/2)$.

1d. Solution to the inequality $x^2 > 4$ is

☐ $x > 4$;

☐ $x > 2$;

☐ $x < 2$;

☐ $x < 4$;

☐ none of the above.

2. Solve rational inequality

$$\frac{1}{x-3} < \frac{1}{x-1}.$$

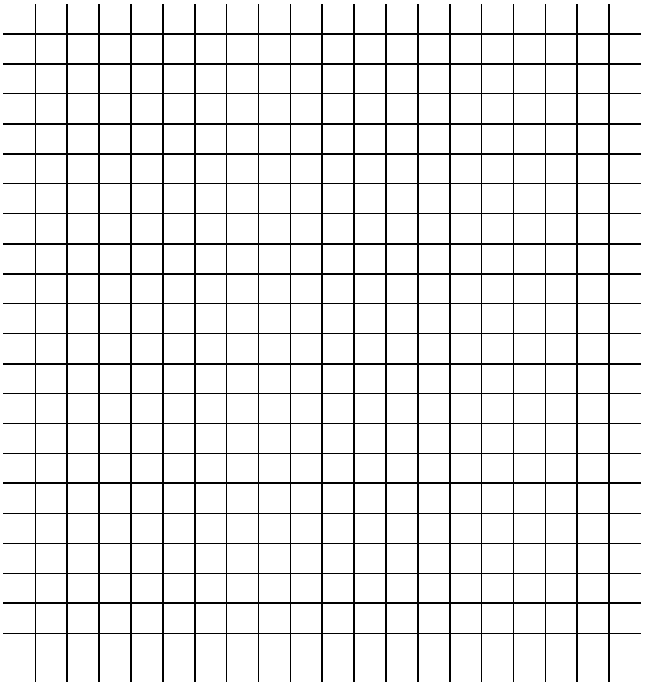
3. Find the inverse function to
$$f(x) = \frac{x-2}{7-x}.$$

4. Graph the rational function

$$R(x) = \frac{(x^2 - 5x + 4)}{(x^2 - 3x - 4)}.$$

5. Graph by using transformations. Make sure to write plainly all intermediate steps:

$$f(x) = 2^{2x-1} - 1.$$



6. Solve exponential equation

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