

## MATHEMATICS 201-009-50

Precalculus

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# Quiz #12

This quiz is due on **Wednesday November 14, 2007** at the beginning of the class.

This is to be done entirely with Maple. A print-out of your work is expected, where your name is written on top and each question is clearly indicated. To write text in Maple, you can click on **T** or go to INSERT – TEXT.

### Question 1 (5 points)

Define the function  $f(x) = \log_3(x-1) + 2$ .

- Find the inverse of  $f(x)$ .
- Find the  $x$ -intercepts of  $f(x)$ .
- Find the  $y$ -intercept of  $f(x)$ .
- Plot, on the same graph, the functions  $f$  and its inverse. Make sure that you choose a window where all the important features of each curve are clearly seen.

### Question 2 (3 points)

Consider the polynomial  $p(x) = x^4 - 3x^3 - 8x^2 + 12x + 16$ .

- Factor  $p(x)$ .
- Sketch the graph of  $p(x)$ . Make sure that you choose a window where all the important features of the curve are clearly seen.

### Question 3 (2 points)

Solve the following equations.

- $3e^{2x-1} + 2 = 8$
- $\log_2 x + \log_2(x-6) = 4$