

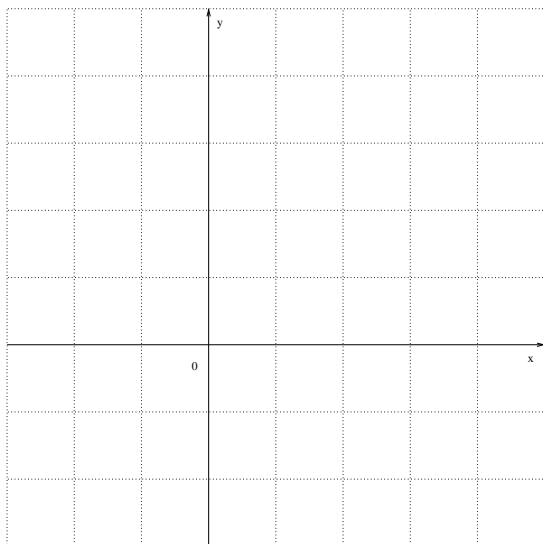
Math120U, Quiz 4, 5/7/2004

Name \_\_\_\_\_ Student number \_\_\_\_\_

No notes allowed though you may use a non-graphical calculator. 20 minutes for the quiz.

1. [12 pts] Given  $y = g(x) = x^2 + 2x$  on  $0 \leq x \leq 1$  (a portion of the parabola).

(a) Sketch the graph of  $y = g(x)$  on the specified domain. You will be convinced by the graph that it is one-to-one.



(b) Now we can find the inverse function. Write the inverse function in the form of  $y = g^{-1}(x) = \dots$ .

(c) Write down the domain and the range of  $y = g^{-1}(x)$  and go back to your sketch in (a) and draw the graph of  $y = g^{-1}(x)$  in the same coordinate system.

2. [8 pts] Given a rational function  $y = \frac{(x - \frac{1}{2}) \cdot (x + \frac{1}{3})}{(x + \frac{1}{3}) \cdot 4x}$ ,

(a) find its natural domain:

(b) find all possible zeros of this rational function:

(c) find all possible vertical and horizontal asymptotic lines of this rational function: