

Math120U, Quiz 3, 4/28/2004

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

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

1. Let  $f(x) = x$ ,  $g(x) = |x|$  with their natural domains, write down the multi-part rule of  $y = \frac{f(x)}{g(x)}$  and the domain of this new function.

2. Start with  $y = x^2$ , write down a sequence of operations on the graph and the resulting new function after each step so that we'll have  $y = 4(x + 1)^2 - 2$  at the end. (*next time, you'll need to complete the square first by yourself*)

step 1:

function 1:

step 2:

function 2:

step 3:

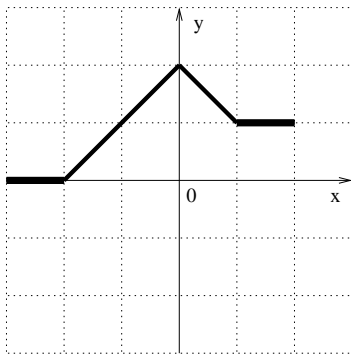
function 3:

Continue your operations if needed and clearly mark the steps and functions.

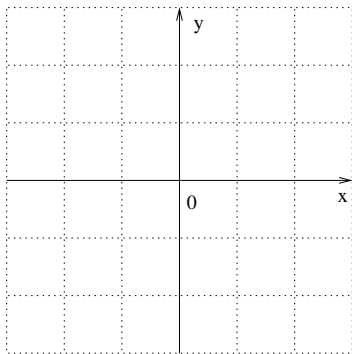
3. Given the graph of  $y = u(x)$  below, perform the following 2 operations, then draw the new graph and write down the new function by just using the notation  $u$  (no need to write down the multi-part function explicitly)

(a) reflect the graph of  $y = u(x)$  with respect to the x-axis

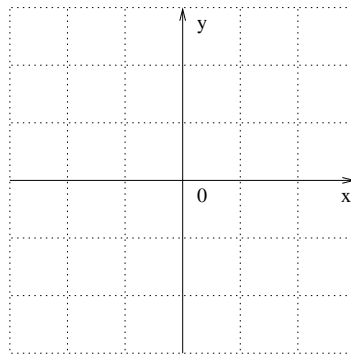
(b) rescale the graph in (a) vertically by a factor  $\frac{1}{2}$



$y = u(x)$



(a)



(b)