

**MATH 231**  
**Quiz 2**

Name \_\_\_\_\_

**September 11, 2001**

WRITE CLEARLY AND SHOW ALL YOUR WORK. YOU MAY USE A CALCULATOR. ALL QUESTIONS ARE WORTH 5 POINTS.

1. Prove by contradiction: if  $x$  is irrational and  $r$  is rational, then the difference  $x - r$  is irrational.

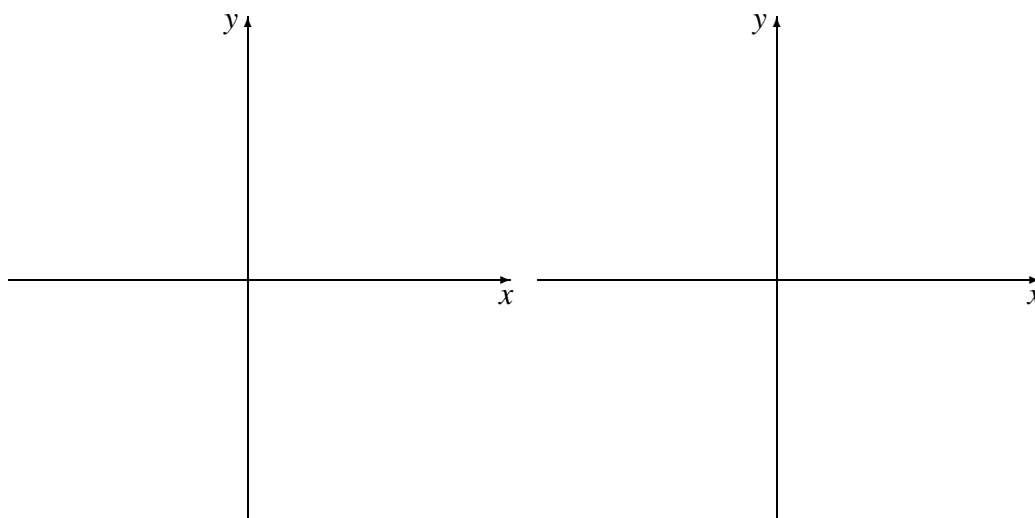
2. Let  $f(x) = \frac{x}{1-x}$ . Find and simplify (i.e., remove all parenthesis):

(a)  $f(a+1)$ .

(b)  $f(x^2+x)$ .

MORE →

3. Sketch, if possible, the graph of a function with domain  $\mathbb{R}$  that has each of the characteristics listed on its entire domain.



concave down and increasing

concave up, decreasing, and negative

4. Sometimes it is convenient to use an equation of the form  $Ax + By + C = 0$  to describe a linear function. Find, in terms of  $A$ ,  $B$ , and  $C$ , the

(a) slope.

(b) y-intercept.