

## 231 Quiz 2

January 27, 2011

Name \_\_\_\_\_

*\* Key \**

By printing my name I pledge to uphold the Honor Code.

Work individually. You may use your Notebooks but no loose papers, printouts, photocopies, books, calculators, cell phones, or other resources.

True/False party!

- F Suppose  $f(x) = 3x + 1$ . For all  $a, b \in \mathbb{R}$ , if  $a < b$  then  $f(a) < f(b)$ . *inc.*
- F Suppose  $f(x) = 3x + 1$ . For all  $a, b \in \mathbb{R}$ , if  $f(a) = f(b)$  then  $a = b$ . *1-1*
- T  F Suppose  $f(x) = x^2$ . For all  $a, b \in \mathbb{R}$ , if  $a < b$  then  $f(a) < f(b)$ . *not inc.*
- T  F Suppose  $f(x) = x^2$ . For all  $a, b \in \mathbb{R}$ , if  $f(a) = f(b)$  then  $a = b$ . *not 1-1*
- T  F For all  $x \in \mathbb{R}$ , there exists some  $y \in \mathbb{R}$  such that  $x = y^2$ . *e.g.  $x = -1$*
- F For all  $y \in \mathbb{R}$ , there exists some  $x \in \mathbb{R}$  such that  $x = y^2$ . *just let  $x = y^2$*
- F If  $f(x)$  has a global max at  $x = c$  then  $f(c) \geq f(x)$  for all  $x \in \text{dom}(f(x))$ . *def'n*
- T  F Every local maximum of  $f(x)$  is also a global maximum of  $f(x)$ . *local  $\nrightarrow$  global*
- F Every constant function is a linear function.  *$c = 0x + c$*
- F Every proportional function is a linear function.  *$kx = kx + 0$*
- T  F Every linear function is a power function.  *$3x + 1$  not  $Ax^k$  form*
- T  F Every power function is a polynomial function.  *$x^{1/2}$  not poly*
- F Every polynomial function is a rational function.  *$\frac{\text{poly}}{1}$*
- F A function can have different average rates of change on different intervals. *any nonlinear*
- F The converse of an implication statement is also an implication statement.  *$B \Rightarrow A$*
- F When  $A$  is true and  $B$  is false, then the implication  $A \Rightarrow B$  is false. *the only way*
- T  F When  $A$  is false and  $B$  is true, then the implication  $A \Rightarrow B$  is false. *says nothing if  $A$  false*
- F If  $g(x)$  is a function then we can write  $f(x) = |g(x)|$  as a piecewise function. *yup*
- F For all real numbers  $x$ , the quantity  $|x|$  is equal to  $\sqrt{x^2}$ . *e.g.  $\sqrt{(-2)^2} = \sqrt{4} = 2$*
- F I would like a free point for this problem. *yay*