Quiz Questions 1 for Mathematics 223
Introductory Analysis I - Fall 2001
Material Covered: Sections 1.5,1.6 of workbook and text
For: Friday, 7th September

This is a 15 minute quiz, worth 5% and marked out of 5 points. The total possible points awarded for each question is given in square brackets at the beginning of each question. Anything that can fit on one side of an $8\frac{1}{2}$ by 11 inch piece of paper may be used as a reference during this quiz. A calculator may also be used. No other aids are permitted.

Name (please print): ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯ . **ID Number:** ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯ .
                                   last   first

1. [1 point] Solve $-4x^2 = -3x - 1$.

2. [2 point] Determine the domain of the function $f(x) = \frac{x^4 - 4}{x^2 + 6x + 5}$.

3. [2 points] Consider the following table showing the number of new small–business incorporations for various years.

Number of years since 1980, x	0	2	4	6	8	10	11
Number of New Incorporations, y	520	560	640	700	695	645	615

(a) Determine the *linear* regression. ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

(b) Determine the *quadratic* regression. ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

1. [1 point] Solve $-4x^2 = -3x - 1$.

$-\frac{1}{4}, 1$

$-4x2 = -3x - 1$ is $-4x^2 + 3x + 1 = 0$ and so $x = \frac{-3 \pm \sqrt{3^2 - 4(-4)(1)}}{2(-4)} = -\frac{1}{4}, 1$

or by graphing or solving by calculator

2. [2 points] Determine the domain of the function $f(x) = \frac{x^4 - 4}{x^2 + 6x + 5}$.

domain is all reals, except $x = -3$, $x = -2$

$f(x) = \frac{x^4 - 4}{x^2 + 6x + 5} = \frac{(x - \sqrt{2})(x + \sqrt{2})(x^2 + 2)}{(x + 3)(x + 2)}$

3. [2 points]

(a) $y = 10.2x + 565.2$

(b) $y = -3.8x^2 + 53.2x + 499.8$