Homework 4

This homework is due in class on Monday 10/26/09

1 Course material

Composition of functions

Textbook Questions: Section 3.5: 2, 10, 14, 16, 28

The inverse of a function

Textbook Questions: Section 3.6: 4, 9, 14, 18, 36, 50

Complete the square

For each of the following expressions, complete the square to rewrite the expression in the form $a(x-r)^2+b$ where a, r and b are real numbers (which can be positive or negative). Note that the original expression and your expression must be *equal* to each other.

- $x^2 + 2x$
- $-x^2 + 3x$
- $2x^2 - 2x + 1$
- $-3x^2 + x - 1$
- $hx^2 + qx$ (where h and q are constants)

Quadratic functions

Textbook Questions: Section 4.2: 6, 8, 10, 12, 16, 18, 20. For each of these problems, instead of the problem asked for (i) determine both $x-$ and $y-$ intercepts (ii) determine the vertex (iii) draw a signs table and (iv) graph the function to check your results.

2 Applied Problems

Mini-project page 228-229 of textbook, questions (a) through (d).

For parts (b) and (c), note that the question implies that you should take x as the number of years elapsed since 1960 (i.e. for 1968, $x = 8$). Instead of using Excel to find the regression:

- graph your data on graphing paper for each set of data (men and women)
- by eye, draw a line which appears to fit the data best
- then pick two points on that line, and find the equation of the line which goes through the two points