Math1204 Test 4

March 21$^{\text{st}}$, 2016

Answer all questions and give complete reasons and checks for your answers. Please do not erase anything, just put a line through your work and continue. The parts of the questions are weighted as shown and can be answered in any order. If you get stuck on a part of a question, ask me and I can give you a hint in return for a mark.

1. (a) Find the best fit straight line for the points (-5,5), (-2,6), (-1,4), (3,2), (4,1).   [5]

   (b) Find the vertical differences between the y values of the points and the straight line and check the difference sum to zero. Which points are on your best fit line? If not all points are on a best fit line, how many could be, at most?   [3]

2. (a) Find the best fit quadratic polynomial that passes through this data: [5]

x_j	-2	-1	1	2
y_j	2	6	9	10

   (b) Determine the exact fit cubic for the data using either the best fit or the exact fit method, explaining why you chose that way, which should be quicker and why it doesn't matter. [7]