Q1b.

Given that z = x + iy, find the value of x and the value of y such that

where z∗ is the complex conjugate of z.

(Total 7 marks)

z = x + iy z\* = x - iy

(x + iy) + 3i(x - iy) = x + iy + 3ix - 3i2y = 3 + 3ix + x + iy

3 + x + 3ix + iy = -1 + 13i x + 3ix = -4 + 13i – iy

x(3i + 1) = -4 + 13i – iy iy = -4 + 13i – x – 3ix

x = y =