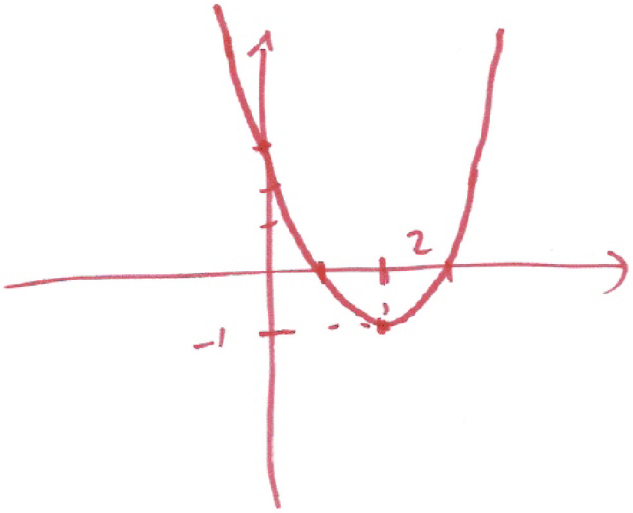
Problem 9: Consider the function $f(x) = 3 - 4x + x^2$.

(a) Put it in normal form by completing the squares,

$f(x) = (x-2)^2 - 4 + 3 = -1 + (x-2)^2$.

(b) sketch its graph and carefully mark all the relevant points,



y-intercept: 3

x-intercept:

$(x-2)^2 = 1$

$x = 2 \pm 1$ < 3, 1

(c) determine if it has a maximum value or a minimum value and if so compute it.

HAS A MINIMUM VALUE OF $\boxed{-1}$