MATH 221 QUIZ 1, FALL 2013

Solve the following two problems, showing all your work.

(1) For which values of a and b does the graph of the function $f(x) = ax + b$ intersect the graph of the function $g(x) = x^2 - 2x + 1$ at exactly one point, and also pass through the point $(1, -1)$?

(2) Let f be the function defined by the requirement that, for any t,

$$y = f(t) \iff \begin{array}{c} y \text{ is the largest of all} \\ \text{possible solutions of} \\ y^2 + 4t^2 = t^2 y + 4y. \end{array}$$

Find a formula for $f(t)$.