

Homework 6

1. (Mad Hatter 9-10 2005) Solve for x : $\sqrt{1 + \sqrt{2 + \sqrt{x}}} = 3$.
2. (Mad Hatter 9-10 2005) Solve for x : $4^x - 4^{x-1} = 12$.
3. (Mad Hatter 11-12 1997) Find all solutions of $2 \cos^2(x) + 3 \cos x = -1$ in the interval $[0, 2\pi)$.
4. (Mad Hatter 11-12 1997) What is the minimum value of $f(x) = 2x^2 - 4x - 1$?
5. (Leap Frog 9-12 1998) Let $f(x) = -x^2 + (a+1)x + a^2$. Find the value of a for which the maximum value of $f(x)$ is as small as possible. For this value of a , graph $f(x)$ and find its maximum value.