Problem of the Week

Finishing date: 11/25/2015

Find all real roots of the following equation:

\[ x^2 + \frac{1}{x} + 7(x + 1) = 8\sqrt{2(x^2 + 1)}. \]

Previous problem winners:

Zachary Hancock (first solution),
and Brendan Caseria.

All the information about the Problem of the Week challenge can be found at http://ProbOfTheWeekUTD.wordpress.com