



Mega Quadratic Equation

Find all real solutions of the equation $(x^2 - 5x + 5)^{x^2 - 11x + 30} = 1$.

There are six possible solutions to the equation - did you find all six?

Here are some more questions to think about

1. Find all the solutions to $(x^2 - 7x + 11)^{x^2 - 13x + 42} = 1$.
How do these solutions compare to the first equation?
2. Can you find a Mega Quadratic Equation with solutions 3,4,5,6,7,8?
How about 4,5,6,7,8,9?...
3. Can you explain why there are only 4 solutions to
 $(x^2 - 5x + 5)^{x^2 - 4} = 1$?
4. Can you explain why there are only 3 solutions to
 $(x^2 - 6x + 10)^{x^2 + x - 2} = 1$?
5. Can you find a Mega Quadratic equation with exactly 2 solutions? 5 solutions?