**Quadratic 3**

**Quadratic equation**

Solve $\left(x^{2}-5x+5\right)^{x^{2}-11x+30}=1$

**Solve** $\left(x^{2}-5x+5\right)^{x^{2}-11x+30}=1$

**Case 1**$1^{n}=1$

$$x^{2}-5x+5=1⟹x^{2}-5x+4=0⟹x=1, 4$$

**Case 2**$n^{0}=1, n\ne 0$

$$x^{2}-11x+30=0⟹x=5, 6$$

When $x=5, 6, x^{2}-11x+30\ne 0$

**Case 3**$(-1)^{even}=1$

$$x^{2}-5x+5=-1⟹x^{2}-5x+6=0⟹x=2,3$$

When $x=2, x^{2}-11x+30=12(even)$

When $x=3, x^{2}-11x+30=6(even)$

Hence, $x=1,2,3,4,5,6$

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**4/8/2021**