

How solve equations with cubic, quartic , quintic roots III

Let's solve $x = \frac{-3}{\sqrt[5]{a \cdot a} \sqrt[5]{a \cdot a} + 4 \sqrt[3]{c \cdot c} - \sqrt{d}}$

coming from $x^5 + 4x^3 - x^2 + 3 = 0$

$(\frac{x}{\sqrt[5]{a^4}})^5 = 1x^5 = a$, $x^3 = c$, $x^2 = d$

$$\sqrt[5]{a \cdot a} \sqrt[5]{a \cdot a} \begin{cases} ++, ++ \equiv --, -- \\ +- , -+ \equiv -+ , +- \end{cases} \quad \sqrt[3]{c \cdot c} \rightarrow ++ \text{ or } +-$$

$\sqrt{d} \rightarrow +, -$

And also: $\sqrt[5]{+a \cdot -a} \equiv \sqrt[5]{-a \cdot +a}$, $\sqrt[5]{+a \cdot +a} \equiv \sqrt[5]{-a \cdot -a}$,

$\sqrt[3]{-c \cdot +c} \equiv \sqrt[3]{+c \cdot -c}$

$\sqrt[5]{a.a}$	$\sqrt[5]{a.a}$	$\sqrt[3]{c.c}$	$\sqrt{d}$	
++	++	++	+	α
++	++	++	-	γ
++	++	--	+	γ
++	++	--	-	δ
++	--	++	+	γ
++	--	++	-	δ
--	++	++	+	γ
--	++	++	-	δ
--	--	++	+	δ
--	--	++	-	λ
--	++	--	+	δ
--	++	--	-	λ
--	--	--	+	λ
--	--	--	-	β

Interestingly fits with statistical theory , and we find 5 combinations possible !!: α , β , γ , δ , λ . Something related to the number of roots of the equation under study .