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Abstracts of Short Communications and Posters

Section:

3. Number Theory and Arithmetic Algebraic Geometry

1991 MS Classification: 14, 30
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On Weierstrass points of the Fermat Curve
Weierstrass points of the Fermat curve $z_0^n + z_1^n + z_2^n = 0$ have been studied by Hasse, Leopoldt, Matzat, Rohrlich, Towse, Watanabe. Set $x = z_1/z_0$, $y = z_2/z_0$. We put the Wronskians $W_n(x,y)$ in the form $W_n(x,y) = cx^{\ell(n)} f_n(x)/y^{m(n)}$. The polynomial $f_n(x)$ can be put in the form

$$\begin{array}{l} \{(X-1)(X+2)(X+1/2)\}^{k(n)} \prod_{i=1}^{N(n)} (X - a_i(n))(X \frac{1}{a_i(n)}) \cdot \\ (X + \frac{a_i(n)}{1+a_i(n)})(X+1+a_i(n))(X + \frac{1}{1+a_i(n)})(X + \frac{1+a_i(n)}{a_i(n)}) \end{array},$$

where $X = x^n$, $a_i(n) \neq 0,\ 1,\ -2,\ -1/2$. We obtain $\ell(n)$, $m(n)$, $k(n)$, $N(n)$, $a_i(n)$ for $n = 7, 8, 9, 10$.
Reference: K. Watanabe, Weierstrass points of the Fermat curve, Proceedinds of the Congress ISAAC'97, Univ. of Delaware, U. S. A., 3–7 June, 1997, Kluwer Academic, to appear.