$$1/h(\xi_s) = \frac{(A - 109/10)^2}{12^3 x^2} + O(1/x^3)$$

whence $A = 109/10$ (because $1/h$ is analytic at ξ_s) and we have

$$\xi_s = 12 + \frac{109}{10x} + O(x^{-2}) \tag{6.70}$$

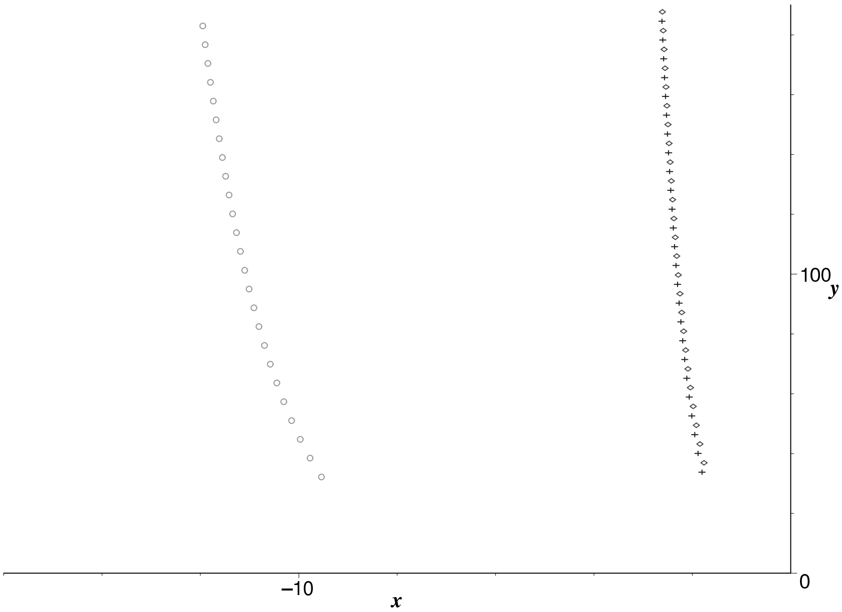

FIGURE 6.4: Poles of (4.85) for $C = -12$ ($\diamond$) and $C = 12$ (+), calculated via (6.70). The light circles are on the second line of poles.

Given a solution h, the onstant C in (6.13) for which (6.67) holds can be calculated from asymptotic information in any direction above the real line by near least term truncation, namely

$$C = \lim_{\substack{x\to\infty \\ \arg(x)=\phi}} \exp(x) x^{1/2} \left(h(x) - \sum_{k \le |x|} \frac{\tilde{h}_{0,k}}{x^k} \right) \tag{6.71}$$

(this is a particular case of much more general formulas [19] where $\sum_{k>0} \tilde{h}_{0,k} x^{-k}$ is the common asymptotic series of all solutions of (4.85) which are small in $\mathbb{H}$. □