Suppose $v$ = the true anomaly, 
$r$ = the radius vector, 
$a = 1$ = the semi axis major of the orbit.

If the rectification for $e = 0$ is used,
\[ v^2 = (\cos^2 i + \sin^2 i \sin^2 v) r^4 = a_1^2 \left( 1 - z \cos^2 \theta \right) \left( \frac{\delta}{d_1} \right)^2, \]
\[ \frac{\delta}{d_1} \left( 1 - z \cos^2 \theta \right) \frac{1}{r^2} = \frac{1}{a_1^2} - \frac{1}{a_1^2} \sin^2 i \cos^2 v, \]
\[ u' = A + B t'; \quad u' = \frac{u}{r^2}; \quad t' = -\cos^2 v. \]

Least squares solutions have been made in the same way as above. The resulting theoretical light curves scarcely differ from those computed with a circular orbit, though obviously $a_1$ and $i$ have other values, viz. for $k = 12$:

periastron at primary minimum: $a_1 = 47$, $i = 63^\circ$, mean error of a single normal point = $\pm 0^\circ 0343$; 
apastron at primary minimum: $a_1 = 34$, $i = 77^\circ$, mean error of a single normal point = $\pm 0^\circ 0357$.

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Note on four southern double stars with large proper motion,

by L. Plaut.

Following a suggestion of Prof. Hertzprung the lists of double stars found by Rossiter, Donner and Jessup at the Lamont Hussey Observatory at Bloemfontein (Mem. R.A.S. 65, part II, III and 66, part I) have been examined for stars with proper motion exceeding $5^\circ$ annually.

Four binaries of this kind have been found:

1. Rst 2280 = CPD = 20°277, 2b24m3, — 20°26' (1900). The data for this star have already been published by Luyten in Hare Bull. No. 910.

2. Jsp 208 = CoD = 59°1774, 7b56m0, — 60°02' (1900); 9m7 — 13m7, $d = 2^\circ 2$, $\mu = +^\circ 52$. The star CoD = 59°1773 [5m7, 50'' preceding; $\pi_\text{tr} = +^\circ 054 \pm ^\circ 009$ (m.e.)] has the same proper motion.

3. Rst 2821 = BD = 17°3723, 12b47m9, — 17°57' (1900); 8m5 — 13m3, $d = 1^\circ 7$, $\mu = ^\circ 88$, $\pi_\text{tr} = +^\circ 013 \pm ^\circ 019$ (m.e.).

4. Rst 3962 = BD = 8°4352, 16b59m2, — 8°09' (1900). This star is identical with Wolf 530, the visual binary with the shortest period known (Kuiper, P. A. S. P. 46, 235 and 48, 19).

The proper motions and trigonometric parallaxes have been taken from Schlesinger's Catalogue of parallaxes (Yale, 1935). The probable annual orbital motions according to Hertzprung (B.A.N. No. 208) are $^\circ 024$ for star 2 and $^\circ 061$ for star 3.