Target equation:

$$-ia_1u^{(1,0)}(x,t)+a_{10}u^{(10,0)}(x,t)-ia_{11}u^{(11,0)}(x,t)+a_{12}u^{(12,0)}(x,t)-ia_{13}u^{(13,0)}(x,t)+a_{14}u^{(14,0)}(x,t)-$$
$$ia_{15}u^{(15,0)}(x,t)+a_{16}u^{(16,0)}(x,t)-ia_{17}u^{(17,0)}(x,t)+a_{18}u^{(18,0)}(x,t)-ia_{19}u^{(19,0)}(x,t)+a_2u^{(2,0)}(x,t)+$$
$$a_{20}u^{(20,0)}(x,t)-ia_{21}u^{(21,0)}(x,t)+a_{22}u^{(22,0)}(x,t)-ia_{23}u^{(23,0)}(x,t)+a_{24}u^{(24,0)}(x,t)-ia_{25}u^{(25,0)}(x,t)+$$
$$a_{26}u^{(26,0)}(x,t)-ia_{27}u^{(27,0)}(x,t)+a_{28}u^{(28,0)}(x,t)-ia_{29}u^{(29,0)}(x,t)-ia_3u^{(3,0)}(x,t)+a_{30}u^{(30,0)}(x,t)-$$
$$ia_{31}u^{(31,0)}(x,t)+a_{32}u^{(32,0)}(x,t)-ia_{33}u^{(33,0)}(x,t)+a_{34}u^{(34,0)}(x,t)-ia_{35}u^{(35,0)}(x,t)+a_{36}u^{(36,0)}(x,t)-$$
$$ia_{37}u^{(37,0)}(x,t)+a_{38}u^{(38,0)}(x,t)+a_4u^{(4,0)}(x,t)-ia_5u^{(5,0)}(x,t)+a_6u^{(6,0)}(x,t)-ia_7u^{(7,0)}(x,t)+$$
$$a_8u^{(8,0)}(x,t)-ia_9u^{(9,0)}(x,t)-bu(x,t)\left|u(x,t)\right|^2+iu^{(0,1)}(x,t)=0$$

Substitutions:

$$\mathrm{N}=19$$
$$u(x,t)\to y(z)e^{i(kx-\omega t)}$$
$$z\to x-\mathrm{C0}t$$
$$y(z)\to AR(z)^{19}$$
$$R'(z)^2=R(z)^2\left(1-\chi R(z)^2\right)$$

Imaginary part of equation after substitutions:

$$-501942a_{38}y^{(5)}(z)k^{33}+435897a_{37}y^{(5)}(z)k^{32}+376992a_{36}y^{(5)}(z)k^{31}+12620256a_{38}y^{(7)}(z)k^{31}-324632a_{35}y^{(5)}(z)k$$
$$10295472a_{37}y^{(7)}(z)k^{30}-278256a_{34}y^{(5)}(z)k^{29}-8347680a_{36}y^{(7)}(z)k^{29}-163011640a_{38}y^{(9)}(z)k^{29}+$$
$$237336a_{33}y^{(5)}(z)k^{28}+6724520a_{35}y^{(7)}(z)k^{28}+124403620a_{37}y^{(9)}(z)k^{28}+201376a_{32}y^{(5)}(z)k^{27}+$$
$$5379616a_{34}y^{(7)}(z)k^{27}+94143280a_{36}y^{(9)}(z)k^{27}+1203322288a_{38}y^{(11)}(z)k^{27}-169911a_{31}y^{(5)}(z)k^{26}-$$
$$4272048a_{33}y^{(7)}(z)k^{26}-70607460a_{35}y^{(9)}(z)k^{26}-854992152a_{37}y^{(11)}(z)k^{26}-142506a_{30}y^{(5)}(z)k^{25}-$$
$$3365856a_{32}y^{(7)}(z)k^{25}-52451256a_{34}y^{(9)}(z)k^{25}-600805296a_{36}y^{(11)}(z)k^{25}-5414950296a_{38}y^{(13)}(z)k^{25}+$$
$$118755a_{29}y^{(5)}(z)k^{24}+2629575a_{31}y^{(7)}(z)k^{24}+38567100a_{33}y^{(9)}(z)k^{24}+417225900a_{35}y^{(11)}(z)k^{24}+$$
$$3562467300a_{37}y^{(13)}(z)k^{24}+98280a_{28}y^{(5)}(z)k^{23}+2035800a_{30}y^{(7)}(z)k^{23}+28048800a_{32}y^{(9)}(z)k^{23}+$$
$$286097760a_{34}y^{(11)}(z)k^{23}+2310789600a_{36}y^{(13)}(z)k^{23}+15471286560a_{38}y^{(15)}(z)k^{23}-80730a_{27}y^{(5)}(z)k^{22}-$$
$$1560780a_{29}y^{(7)}(z)k^{22}-20160075a_{31}y^{(9)}(z)k^{22}-193536720a_{33}y^{(11)}(z)k^{22}-1476337800a_{35}y^{(13)}(z)k^{22}-$$
$$9364199760a_{37}y^{(15)}(z)k^{22}-65780a_{26}y^{(5)}(z)k^{21}-1184040a_{28}y^{(7)}(z)k^{21}-14307150a_{30}y^{(9)}(z)k^{21}-$$
$$129024480a_{32}y^{(11)}(z)k^{21}-927983760a_{34}y^{(13)}(z)k^{21}-5567902560a_{36}y^{(15)}(z)k^{21}-28781143380a_{38}y^{(17)}(z)k^{21}+$$
$$53130a_{25}y^{(5)}(z)k^{20}+888030a_{27}y^{(7)}(z)k^{20}+10015005a_{29}y^{(9)}(z)k^{20}+84672315a_{31}y^{(11)}(z)k^{20}+573166440a_{33}y^{(13)}$$
$$3247943160a_{35}y^{(15)}(z)k^{20}+15905368710a_{37}y^{(17)}(z)k^{20}+42504a_{24}y^{(5)}(z)k^{19}+657800a_{26}y^{(7)}(z)k^{19}+$$
$$6906900a_{28}y^{(9)}(z)k^{19}+54627300a_{30}y^{(11)}(z)k^{19}+347373600a_{32}y^{(13)}(z)k^{19}+1855967520a_{34}y^{(15)}(z)k^{19}+$$
$$8597496600a_{36}y^{(17)}(z)k^{19}+35345263800a_{38}y^{(19)}(z)k^{19}-33649a_{23}y^{(5)}(z)k^{18}-480700a_{25}y^{(7)}(z)k^{18}-$$
$$4686825a_{27}y^{(9)}(z)k^{18}-34597290a_{29}y^{(11)}(z)k^{18}-206253075a_{31}y^{(13)}(z)k^{18}-1037158320a_{33}y^{(15)}(z)k^{18}-$$
$$4537567650a_{35}y^{(17)}(z)k^{18}-17672631900a_{37}y^{(19)}(z)k^{18}-26334a_{22}y^{(5)}(z)k^{17}-346104a_{24}y^{(7)}(z)k^{17}-$$
$$3124550a_{26}y^{(9)}(z)k^{17}-21474180a_{28}y^{(11)}(z)k^{17}-119759850a_{30}y^{(13)}(z)k^{17}-565722720a_{32}y^{(15)}(z)k^{17}-$$

$$2333606220a_{34}y^{(17)}(z)k^{17}-8597496600a_{36}y^{(19)}(z)k^{17}-28781143380a_{38}y^{(21)}(z)k^{17}+20349a_{21}y^{(5)}(z)k^{16}+$$
$$245157a_{23}y^{(7)}(z)k^{16}+2042975a_{25}y^{(9)}(z)k^{16}+13037895a_{27}y^{(11)}(z)k^{16}+67863915a_{29}y^{(13)}(z)k^{16}+$$
$$300540195a_{31}y^{(15)}(z)k^{16}+1166803110a_{33}y^{(17)}(z)k^{16}+4059928950a_{35}y^{(19)}(z)k^{16}+12875774670a_{37}y^{(21)}(z)k^{16}+$$
$$15504a_{20}y^{(5)}(z)k^{15}+170544a_{22}y^{(7)}(z)k^{15}+1307504a_{24}y^{(9)}(z)k^{15}+7726160a_{26}y^{(11)}(z)k^{15}+37442160a_{28}y^{(13)}(z)$$
$$155117520a_{30}y^{(15)}(z)k^{15}+565722720a_{32}y^{(17)}(z)k^{15}+1855967520a_{34}y^{(19)}(z)k^{15}+5567902560a_{36}y^{(21)}(z)k^{15}+$$
$$15471286560a_{38}y^{(23)}(z)k^{15}-11628a_{19}y^{(5)}(z)k^{14}-116280a_{21}y^{(7)}(z)k^{14}-817190a_{23}y^{(9)}(z)k^{14}-$$
$$4457400a_{25}y^{(11)}(z)k^{14}-20058300a_{27}y^{(13)}(z)k^{14}-77558760a_{29}y^{(15)}(z)k^{14}-265182525a_{31}y^{(17)}(z)k^{14}-$$
$$818809200a_{33}y^{(19)}(z)k^{14}-2319959400a_{35}y^{(21)}(z)k^{14}-6107086800a_{37}y^{(23)}(z)k^{14}-8568a_{18}y^{(5)}(z)k^{13}-$$
$$77520a_{20}y^{(7)}(z)k^{13}-497420a_{22}y^{(9)}(z)k^{13}-2496144a_{24}y^{(11)}(z)k^{13}-10400600a_{26}y^{(13)}(z)k^{13}-37442160a_{28}y^{(15)}($$
$$119759850a_{30}y^{(17)}(z)k^{13}-347373600a_{32}y^{(19)}(z)k^{13}-927983760a_{34}y^{(21)}(z)k^{13}-2310789600a_{36}y^{(23)}(z)k^{13}-$$
$$5414950296a_{38}y^{(25)}(z)k^{13}+6188a_{17}y^{(5)}(z)k^{12}+50388a_{19}y^{(7)}(z)k^{12}+293930a_{21}y^{(9)}(z)k^{12}+1352078a_{23}y^{(11)}(z)k$$
$$5200300a_{25}y^{(13)}(z)k^{12}+17383860a_{27}y^{(15)}(z)k^{12}+51895935a_{29}y^{(17)}(z)k^{12}+141120525a_{31}y^{(19)}(z)k^{12}+$$
$$354817320a_{33}y^{(21)}(z)k^{12}+834451800a_{35}y^{(23)}(z)k^{12}+1852482996a_{37}y^{(25)}(z)k^{12}+4368a_{16}y^{(5)}(z)k^{11}+$$
$$31824a_{18}y^{(7)}(z)k^{11}+167960a_{20}y^{(9)}(z)k^{11}+705432a_{22}y^{(11)}(z)k^{11}+2496144a_{24}y^{(13)}(z)k^{11}+7726160a_{26}y^{(15)}(z)k$$
$$21474180a_{28}y^{(17)}(z)k^{11}+54627300a_{30}y^{(19)}(z)k^{11}+129024480a_{32}y^{(21)}(z)k^{11}+286097760a_{34}y^{(23)}(z)k^{11}+$$
$$600805296a_{36}y^{(25)}(z)k^{11}+1203322288a_{38}y^{(27)}(z)k^{11}-3003a_{15}y^{(5)}(z)k^{10}-19448a_{17}y^{(7)}(z)k^{10}-$$
$$92378a_{19}y^{(9)}(z)k^{10}-352716a_{21}y^{(11)}(z)k^{10}-1144066a_{23}y^{(13)}(z)k^{10}-3268760a_{25}y^{(15)}(z)k^{10}-8436285a_{27}y^{(17)}(z$$
$$20030010a_{29}y^{(19)}(z)k^{10}-44352165a_{31}y^{(21)}(z)k^{10}-92561040a_{33}y^{(23)}(z)k^{10}-183579396a_{35}y^{(25)}(z)k^{10}-$$
$$348330136a_{37}y^{(27)}(z)k^{10}-2002a_{14}y^{(5)}(z)k^{9}-11440a_{16}y^{(7)}(z)k^{9}-48620a_{18}y^{(9)}(z)k^{9}-167960a_{20}y^{(11)}(z)k^{9}-$$
$$497420a_{22}y^{(13)}(z)k^{9}-1307504a_{24}y^{(15)}(z)k^{9}-3124550a_{26}y^{(17)}(z)k^{9}-6906900a_{28}y^{(19)}(z)k^{9}-14307150a_{30}y^{(21)}(z$$
$$28048800a_{32}y^{(23)}(z)k^{9}-52451256a_{34}y^{(25)}(z)k^{9}-94143280a_{36}y^{(27)}(z)k^{9}-163011640a_{38}y^{(29)}(z)k^{9}+$$
$$1287a_{13}y^{(5)}(z)k^{8}+6435a_{15}y^{(7)}(z)k^{8}+24310a_{17}y^{(9)}(z)k^{8}+75582a_{19}y^{(11)}(z)k^{8}+203490a_{21}y^{(13)}(z)k^{8}+$$
$$490314a_{23}y^{(15)}(z)k^{8}+1081575a_{25}y^{(17)}(z)k^{8}+2220075a_{27}y^{(19)}(z)k^{8}+4292145a_{29}y^{(21)}(z)k^{8}+7888725a_{31}y^{(23)}(z)$$
$$13884156a_{33}y^{(25)}(z)k^{8}+23535820a_{35}y^{(27)}(z)k^{8}+38608020a_{37}y^{(29)}(z)k^{8}+792a_{12}y^{(5)}(z)k^{7}+3432a_{14}y^{(7)}(z)k^{7}+$$
$$11440a_{16}y^{(9)}(z)k^{7}+31824a_{18}y^{(11)}(z)k^{7}+77520a_{20}y^{(13)}(z)k^{7}+170544a_{22}y^{(15)}(z)k^{7}+346104a_{24}y^{(17)}(z)k^{7}+$$
$$657800a_{26}y^{(19)}(z)k^{7}+1184040a_{28}y^{(21)}(z)k^{7}+2035800a_{30}y^{(23)}(z)k^{7}+3365856a_{32}y^{(25)}(z)k^{7}+5379616a_{34}y^{(27)}(z)$$
$$8347680a_{36}y^{(29)}(z)k^{7}+12620256a_{38}y^{(31)}(z)k^{7}-462a_{11}y^{(5)}(z)k^{6}-1716a_{13}y^{(7)}(z)k^{6}-5005a_{15}y^{(9)}(z)k^{6}-$$
$$12376a_{17}y^{(11)}(z)k^{6}-27132a_{19}y^{(13)}(z)k^{6}-54264a_{21}y^{(15)}(z)k^{6}-100947a_{23}y^{(17)}(z)k^{6}-177100a_{25}y^{(19)}(z)k^{6}-$$
$$296010a_{27}y^{(21)}(z)k^{6}-475020a_{29}y^{(23)}(z)k^{6}-736281a_{31}y^{(25)}(z)k^{6}-1107568a_{33}y^{(27)}(z)k^{6}-1623160a_{35}y^{(29)}(z)k^{6}$$
$$2324784a_{37}y^{(31)}(z)k^{6}-252a_{10}y^{(5)}(z)k^{5}-792a_{12}y^{(7)}(z)k^{5}-2002a_{14}y^{(9)}(z)k^{5}-4368a_{16}y^{(11)}(z)k^{5}-$$
$$8568a_{18}y^{(13)}(z)k^{5}-15504a_{20}y^{(15)}(z)k^{5}-26334a_{22}y^{(17)}(z)k^{5}-42504a_{24}y^{(19)}(z)k^{5}-65780a_{26}y^{(21)}(z)k^{5}-$$
$$98280a_{28}y^{(23)}(z)k^{5}-142506a_{30}y^{(25)}(z)k^{5}-201376a_{32}y^{(27)}(z)k^{5}-278256a_{34}y^{(29)}(z)k^{5}-376992a_{36}y^{(31)}(z)k^{5}-$$
$$501942a_{38}y^{(33)}(z)k^{5}+126a_{9}y^{(5)}(z)k^{4}+330a_{11}y^{(7)}(z)k^{4}+715a_{13}y^{(9)}(z)k^{4}+1365a_{15}y^{(11)}(z)k^{4}+$$
$$2380a_{17}y^{(13)}(z)k^{4}+3876a_{19}y^{(15)}(z)k^{4}+5985a_{21}y^{(17)}(z)k^{4}+8855a_{23}y^{(19)}(z)k^{4}+12650a_{25}y^{(21)}(z)k^{4}+$$

$$17550a_{27}y^{(23)}(z)k^4+23751a_{29}y^{(25)}(z)k^4+31465a_{31}y^{(27)}(z)k^4+40920a_{33}y^{(29)}(z)k^4+52360a_{35}y^{(31)}(z)k^4+$$
$$66045a_{37}y^{(33)}(z)k^4+56a_8y^{(5)}(z)k^3+120a_{10}y^{(7)}(z)k^3+220a_{12}y^{(9)}(z)k^3+364a_{14}y^{(11)}(z)k^3+560a_{16}y^{(13)}(z)k^3+$$
$$816a_{18}y^{(15)}(z)k^3+1140a_{20}y^{(17)}(z)k^3+1540a_{22}y^{(19)}(z)k^3+2024a_{24}y^{(21)}(z)k^3+2600a_{26}y^{(23)}(z)k^3+$$
$$3276a_{28}y^{(25)}(z)k^3+4060a_{30}y^{(27)}(z)k^3+4960a_{32}y^{(29)}(z)k^3+5984a_{34}y^{(31)}(z)k^3+7140a_{36}y^{(33)}(z)k^3+$$
$$8436a_{38}y^{(35)}(z)k^3-21a_7y^{(5)}(z)k^2-36a_9y^{(7)}(z)k^2-55a_{11}y^{(9)}(z)k^2-78a_{13}y^{(11)}(z)k^2-105a_{15}y^{(13)}(z)k^2-$$
$$136a_{17}y^{(15)}(z)k^2-171a_{19}y^{(17)}(z)k^2-210a_{21}y^{(19)}(z)k^2-253a_{23}y^{(21)}(z)k^2-300a_{25}y^{(23)}(z)k^2-$$
$$351a_{27}y^{(25)}(z)k^2-406a_{29}y^{(27)}(z)k^2-465a_{31}y^{(29)}(z)k^2-528a_{33}y^{(31)}(z)k^2-595a_{35}y^{(33)}(z)k^2-$$
$$666a_{37}y^{(35)}(z)k^2-6a_6y^{(5)}(z)k-8a_8y^{(7)}(z)k-10a_{10}y^{(9)}(z)k-12a_{12}y^{(11)}(z)k-14a_{14}y^{(13)}(z)k-$$
$$16a_{16}y^{(15)}(z)k-18a_{18}y^{(17)}(z)k-20a_{20}y^{(19)}(z)k-22a_{22}y^{(21)}(z)k-24a_{24}y^{(23)}(z)k-26a_{26}y^{(25)}(z)k-$$
$$28a_{28}y^{(27)}(z)k-30a_{30}y^{(29)}(z)k-32a_{32}y^{(31)}(z)k-34a_{34}y^{(33)}(z)k-36a_{36}y^{(35)}(z)k-38a_{38}y^{(37)}(z)k+$$
$$(a_1-\mathrm{C0}+k\,(k\,(k\,(4a_4+k\,(5a_5+k\,(k\,(k\,(8a_8+k\,(9a_9+k\,(k\,(k\,(12a_{12}+k\,(13a_{13}+k\,(k\,(k\,(16a_{16}+k\,(17a_1$$
$$(a_3+k\,(k\,(k\,(20a_6+k\,(35a_7+k\,(k\,(k\,(120a_{10}+k\,(165a_{11}+k\,(k\,(k\,(364a_{14}+k\,(455a_{15}+k\,(k\,(k\,(816a_{18}+k$$
$$a_5y^{(5)}(z)+a_7y^{(7)}(z)+a_9y^{(9)}(z)+a_{11}y^{(11)}(z)+a_{13}y^{(13)}(z)+a_{15}y^{(15)}(z)+a_{17}y^{(17)}(z)+a_{19}y^{(19)}(z)+$$
$$a_{21}y^{(21)}(z)+a_{23}y^{(23)}(z)+a_{25}y^{(25)}(z)+a_{27}y^{(27)}(z)+a_{29}y^{(29)}(z)+a_{31}y^{(31)}(z)+a_{33}y^{(33)}(z)+$$
$$a_{35}y^{(35)}(z)+a_{37}y^{(37)}(z)=0$$

Real part of equation after substitutions:

$$-73815a_{38}y^{(4)}(z)k^{34}+66045a_{37}y^{(4)}(z)k^{33}+58905a_{36}y^{(4)}(z)k^{32}+2760681a_{38}y^{(6)}(z)k^{32}-52360a_{35}y^{(4)}(z)k^{31}-$$
$$2324784a_{37}y^{(6)}(z)k^{31}-46376a_{34}y^{(4)}(z)k^{30}-1947792a_{36}y^{(6)}(z)k^{30}-48903492a_{38}y^{(8)}(z)k^{30}+40920a_{33}y^{(4)}(z)k^{29}$$
$$1623160a_{35}y^{(6)}(z)k^{29}+38608020a_{37}y^{(8)}(z)k^{29}+35960a_{32}y^{(4)}(z)k^{28}+1344904a_{34}y^{(6)}(z)k^{28}+30260340a_{36}y^{(8)}(z)$$
$$472733756a_{38}y^{(10)}(z)k^{28}-31465a_{31}y^{(4)}(z)k^{27}-1107568a_{33}y^{(6)}(z)k^{27}-23535820a_{35}y^{(8)}(z)k^{27}-$$
$$348330136a_{37}y^{(10)}(z)k^{27}-27405a_{30}y^{(4)}(z)k^{26}-906192a_{32}y^{(6)}(z)k^{26}-18156204a_{34}y^{(8)}(z)k^{26}-$$
$$254186856a_{36}y^{(10)}(z)k^{26}-2707475148a_{38}y^{(12)}(z)k^{26}+23751a_{29}y^{(4)}(z)k^{25}+736281a_{31}y^{(6)}(z)k^{25}+$$
$$13884156a_{33}y^{(8)}(z)k^{25}+183579396a_{35}y^{(10)}(z)k^{25}+1852482996a_{37}y^{(12)}(z)k^{25}+20475a_{28}y^{(4)}(z)k^{24}+$$
$$593775a_{30}y^{(6)}(z)k^{24}+10518300a_{32}y^{(8)}(z)k^{24}+131128140a_{34}y^{(10)}(z)k^{24}+1251677700a_{36}y^{(12)}(z)k^{24}+$$
$$9669554100a_{38}y^{(14)}(z)k^{24}-17550a_{27}y^{(4)}(z)k^{23}-475020a_{29}y^{(6)}(z)k^{23}-7888725a_{31}y^{(8)}(z)k^{23}-$$
$$92561040a_{33}y^{(10)}(z)k^{23}-834451800a_{35}y^{(12)}(z)k^{23}-6107086800a_{37}y^{(14)}(z)k^{23}-14950a_{26}y^{(4)}(z)k^{22}-$$
$$376740a_{28}y^{(6)}(z)k^{22}-5852925a_{30}y^{(8)}(z)k^{22}-64512240a_{32}y^{(10)}(z)k^{22}-548354040a_{34}y^{(12)}(z)k^{22}-$$
$$3796297200a_{36}y^{(14)}(z)k^{22}-22239974430a_{38}y^{(16)}(z)k^{22}+12650a_{25}y^{(4)}(z)k^{21}+296010a_{27}y^{(6)}(z)k^{21}+$$
$$4292145a_{29}y^{(8)}(z)k^{21}+44352165a_{31}y^{(10)}(z)k^{21}+354817320a_{33}y^{(12)}(z)k^{21}+2319959400a_{35}y^{(14)}(z)k^{21}+$$
$$12875774670a_{37}y^{(16)}(z)k^{21}+10626a_{24}y^{(4)}(z)k^{20}+230230a_{26}y^{(6)}(z)k^{20}+3108105a_{28}y^{(8)}(z)k^{20}+$$
$$30045015a_{30}y^{(10)}(z)k^{20}+225792840a_{32}y^{(12)}(z)k^{20}+1391975640a_{34}y^{(14)}(z)k^{20}+7307872110a_{36}y^{(16)}(z)k^{20}+$$
$$33578000610a_{38}y^{(18)}(z)k^{20}-8855a_{23}y^{(4)}(z)k^{19}-177100a_{25}y^{(6)}(z)k^{19}-2220075a_{27}y^{(8)}(z)k^{19}-$$
$$20030010a_{29}y^{(10)}(z)k^{19}-141120525a_{31}y^{(12)}(z)k^{19}-818809200a_{33}y^{(14)}(z)k^{19}-4059928950a_{35}y^{(16)}(z)k^{19}-$$
$$17672631900a_{37}y^{(18)}(z)k^{19}-7315a_{22}y^{(4)}(z)k^{18}-134596a_{24}y^{(6)}(z)k^{18}-1562275a_{26}y^{(8)}(z)k^{18}-$$

$$13123110a_{28}y^{(10)}(z)k^{18}-86493225a_{30}y^{(12)}(z)k^{18}-471435600a_{32}y^{(14)}(z)k^{18}-2203961430a_{34}y^{(16)}(z)k^{18}-$$
$$9075135300a_{36}y^{(18)}(z)k^{18}-33578000610a_{38}y^{(20)}(z)k^{18}+5985a_{21}y^{(4)}(z)k^{17}+100947a_{23}y^{(6)}(z)k^{17}+$$
$$1081575a_{25}y^{(8)}(z)k^{17}+8436285a_{27}y^{(10)}(z)k^{17}+51895935a_{29}y^{(12)}(z)k^{17}+265182525a_{31}y^{(14)}(z)k^{17}+$$
$$1166803110a_{33}y^{(16)}(z)k^{17}+4537567650a_{35}y^{(18)}(z)k^{17}+15905368710a_{37}y^{(20)}(z)k^{17}+4845a_{20}y^{(4)}(z)k^{16}+$$
$$74613a_{22}y^{(6)}(z)k^{16}+735471a_{24}y^{(8)}(z)k^{16}+5311735a_{26}y^{(10)}(z)k^{16}+30421755a_{28}y^{(12)}(z)k^{16}+145422675a_{30}y^{(14)}$$
$$601080390a_{32}y^{(16)}(z)k^{16}+2203961430a_{34}y^{(18)}(z)k^{16}+7307872110a_{36}y^{(20)}(z)k^{16}+22239974430a_{38}y^{(22)}(z)k^{16}-$$
$$3876a_{19}y^{(4)}(z)k^{15}-54264a_{21}y^{(6)}(z)k^{15}-490314a_{23}y^{(8)}(z)k^{15}-3268760a_{25}y^{(10)}(z)k^{15}-17383860a_{27}y^{(12)}(z)k^{15}$$
$$77558760a_{29}y^{(14)}(z)k^{15}-300540195a_{31}y^{(16)}(z)k^{15}-1037158320a_{33}y^{(18)}(z)k^{15}-3247943160a_{35}y^{(20)}(z)k^{15}-$$
$$9364199760a_{37}y^{(22)}(z)k^{15}-3060a_{18}y^{(4)}(z)k^{14}-38760a_{20}y^{(6)}(z)k^{14}-319770a_{22}y^{(8)}(z)k^{14}-1961256a_{24}y^{(10)}(z)k$$
$$9657700a_{26}y^{(12)}(z)k^{14}-40116600a_{28}y^{(14)}(z)k^{14}-145422675a_{30}y^{(16)}(z)k^{14}-471435600a_{32}y^{(18)}(z)k^{14}-$$
$$1391975640a_{34}y^{(20)}(z)k^{14}-3796297200a_{36}y^{(22)}(z)k^{14}-9669554100a_{38}y^{(24)}(z)k^{14}+2380a_{17}y^{(4)}(z)k^{13}+$$
$$27132a_{19}y^{(6)}(z)k^{13}+203490a_{21}y^{(8)}(z)k^{13}+1144066a_{23}y^{(10)}(z)k^{13}+5200300a_{25}y^{(12)}(z)k^{13}+20058300a_{27}y^{(14)}(z$$
$$67863915a_{29}y^{(16)}(z)k^{13}+206253075a_{31}y^{(18)}(z)k^{13}+573166440a_{33}y^{(20)}(z)k^{13}+1476337800a_{35}y^{(22)}(z)k^{13}+$$
$$3562467300a_{37}y^{(24)}(z)k^{13}+1820a_{16}y^{(4)}(z)k^{12}+18564a_{18}y^{(6)}(z)k^{12}+125970a_{20}y^{(8)}(z)k^{12}+646646a_{22}y^{(10)}(z)k^{12}$$
$$2704156a_{24}y^{(12)}(z)k^{12}+9657700a_{26}y^{(14)}(z)k^{12}+30421755a_{28}y^{(16)}(z)k^{12}+86493225a_{30}y^{(18)}(z)k^{12}+$$
$$225792840a_{32}y^{(20)}(z)k^{12}+548354040a_{34}y^{(22)}(z)k^{12}+1251677700a_{36}y^{(24)}(z)k^{12}+2707475148a_{38}y^{(26)}(z)k^{12}-$$
$$1365a_{15}y^{(4)}(z)k^{11}-12376a_{17}y^{(6)}(z)k^{11}-75582a_{19}y^{(8)}(z)k^{11}-352716a_{21}y^{(10)}(z)k^{11}-1352078a_{23}y^{(12)}(z)k^{11}-$$
$$4457400a_{25}y^{(14)}(z)k^{11}-13037895a_{27}y^{(16)}(z)k^{11}-34597290a_{29}y^{(18)}(z)k^{11}-84672315a_{31}y^{(20)}(z)k^{11}-$$
$$193536720a_{33}y^{(22)}(z)k^{11}-417225900a_{35}y^{(24)}(z)k^{11}-854992152a_{37}y^{(26)}(z)k^{11}-1001a_{14}y^{(4)}(z)k^{10}-$$
$$8008a_{16}y^{(6)}(z)k^{10}-43758a_{18}y^{(8)}(z)k^{10}-184756a_{20}y^{(10)}(z)k^{10}-646646a_{22}y^{(12)}(z)k^{10}-1961256a_{24}y^{(14)}(z)k^{10}-$$
$$5311735a_{26}y^{(16)}(z)k^{10}-13123110a_{28}y^{(18)}(z)k^{10}-30045015a_{30}y^{(20)}(z)k^{10}-64512240a_{32}y^{(22)}(z)k^{10}-$$
$$131128140a_{34}y^{(24)}(z)k^{10}-254186856a_{36}y^{(26)}(z)k^{10}-472733756a_{38}y^{(28)}(z)k^{10}+715a_{13}y^{(4)}(z)k^{9}+$$
$$5005a_{15}y^{(6)}(z)k^{9}+24310a_{17}y^{(8)}(z)k^{9}+92378a_{19}y^{(10)}(z)k^{9}+293930a_{21}y^{(12)}(z)k^{9}+817190a_{23}y^{(14)}(z)k^{9}+$$
$$2042975a_{25}y^{(16)}(z)k^{9}+4686825a_{27}y^{(18)}(z)k^{9}+10015005a_{29}y^{(20)}(z)k^{9}+20160075a_{31}y^{(22)}(z)k^{9}+$$
$$38567100a_{33}y^{(24)}(z)k^{9}+70607460a_{35}y^{(26)}(z)k^{9}+124403620a_{37}y^{(28)}(z)k^{9}+495a_{12}y^{(4)}(z)k^{8}+3003a_{14}y^{(6)}(z)k^{8}+$$
$$12870a_{16}y^{(8)}(z)k^{8}+43758a_{18}y^{(10)}(z)k^{8}+125970a_{20}y^{(12)}(z)k^{8}+319770a_{22}y^{(14)}(z)k^{8}+735471a_{24}y^{(16)}(z)k^{8}+$$
$$1562275a_{26}y^{(18)}(z)k^{8}+3108105a_{28}y^{(20)}(z)k^{8}+5852925a_{30}y^{(22)}(z)k^{8}+10518300a_{32}y^{(24)}(z)k^{8}+$$
$$18156204a_{34}y^{(26)}(z)k^{8}+30260340a_{36}y^{(28)}(z)k^{8}+48903492a_{38}y^{(30)}(z)k^{8}-330a_{11}y^{(4)}(z)k^{7}-1716a_{13}y^{(6)}(z)k^{7}-$$
$$6435a_{15}y^{(8)}(z)k^{7}-19448a_{17}y^{(10)}(z)k^{7}-50388a_{19}y^{(12)}(z)k^{7}-116280a_{21}y^{(14)}(z)k^{7}-245157a_{23}y^{(16)}(z)k^{7}-$$
$$480700a_{25}y^{(18)}(z)k^{7}-888030a_{27}y^{(20)}(z)k^{7}-1560780a_{29}y^{(22)}(z)k^{7}-2629575a_{31}y^{(24)}(z)k^{7}-4272048a_{33}y^{(26)}(z)k$$
$$6724520a_{35}y^{(28)}(z)k^{7}-10295472a_{37}y^{(30)}(z)k^{7}-210a_{10}y^{(4)}(z)k^{6}-924a_{12}y^{(6)}(z)k^{6}-3003a_{14}y^{(8)}(z)k^{6}-$$
$$8008a_{16}y^{(10)}(z)k^{6}-18564a_{18}y^{(12)}(z)k^{6}-38760a_{20}y^{(14)}(z)k^{6}-74613a_{22}y^{(16)}(z)k^{6}-134596a_{24}y^{(18)}(z)k^{6}-$$
$$230230a_{26}y^{(20)}(z)k^{6}-376740a_{28}y^{(22)}(z)k^{6}-593775a_{30}y^{(24)}(z)k^{6}-906192a_{32}y^{(26)}(z)k^{6}-1344904a_{34}y^{(28)}(z)k^{6}-$$
$$1947792a_{36}y^{(30)}(z)k^{6}-2760681a_{38}y^{(32)}(z)k^{6}+126a_{9}y^{(4)}(z)k^{5}+462a_{11}y^{(6)}(z)k^{5}+1287a_{13}y^{(8)}(z)k^{5}+$$

$3003a_{15}y^{(10)}(z)k^5+6188a_{17}y^{(12)}(z)k^5+11628a_{19}y^{(14)}(z)k^5+20349a_{21}y^{(16)}(z)k^5+33649a_{23}y^{(18)}(z)k^5+$
$53130a_{25}y^{(20)}(z)k^5+80730a_{27}y^{(22)}(z)k^5+118755a_{29}y^{(24)}(z)k^5+169911a_{31}y^{(26)}(z)k^5+237336a_{33}y^{(28)}(z)k^5+$
$324632a_{35}y^{(30)}(z)k^5 + 435897a_{37}y^{(32)}(z)k^5 + 70a_8y^{(4)}(z)k^4 + 210a_{10}y^{(6)}(z)k^4 + 495a_{12}y^{(8)}(z)k^4 +$
$1001a_{14}y^{(10)}(z)k^4+1820a_{16}y^{(12)}(z)k^4+3060a_{18}y^{(14)}(z)k^4+4845a_{20}y^{(16)}(z)k^4+7315a_{22}y^{(18)}(z)k^4+$
$10626a_{24}y^{(20)}(z)k^4+14950a_{26}y^{(22)}(z)k^4+20475a_{28}y^{(24)}(z)k^4+27405a_{30}y^{(26)}(z)k^4+35960a_{32}y^{(28)}(z)k^4+$
$46376a_{34}y^{(30)}(z)k^4 + 58905a_{36}y^{(32)}(z)k^4 + 73815a_{38}y^{(34)}(z)k^4 - 35a_7y^{(4)}(z)k^3 - 84a_9y^{(6)}(z)k^3 -$
$165a_{11}y^{(8)}(z)k^3 - 286a_{13}y^{(10)}(z)k^3 - 455a_{15}y^{(12)}(z)k^3 - 680a_{17}y^{(14)}(z)k^3 - 969a_{19}y^{(16)}(z)k^3 -$
$1330a_{21}y^{(18)}(z)k^3-1771a_{23}y^{(20)}(z)k^3-2300a_{25}y^{(22)}(z)k^3-2925a_{27}y^{(24)}(z)k^3-3654a_{29}y^{(26)}(z)k^3-$
$4495a_{31}y^{(28)}(z)k^3 - 5456a_{33}y^{(30)}(z)k^3 - 6545a_{35}y^{(32)}(z)k^3 - 7770a_{37}y^{(34)}(z)k^3 - 15a_6y^{(4)}(z)k^2 -$
$28a_8y^{(6)}(z)k^2-45a_{10}y^{(8)}(z)k^2-66a_{12}y^{(10)}(z)k^2-91a_{14}y^{(12)}(z)k^2-120a_{16}y^{(14)}(z)k^2-153a_{18}y^{(16)}(z)k^2-$
$190a_{20}y^{(18)}(z)k^2 - 231a_{22}y^{(20)}(z)k^2 - 276a_{24}y^{(22)}(z)k^2 - 325a_{26}y^{(24)}(z)k^2 - 378a_{28}y^{(26)}(z)k^2 -$
$435a_{30}y^{(28)}(z)k^2 - 496a_{32}y^{(30)}(z)k^2 - 561a_{34}y^{(32)}(z)k^2 - 630a_{36}y^{(34)}(z)k^2 - 703a_{38}y^{(36)}(z)k^2 +$
$5a_5y^{(4)}(z)k+7a_7y^{(6)}(z)k+9a_9y^{(8)}(z)k+11a_{11}y^{(10)}(z)k+13a_{13}y^{(12)}(z)k+15a_{15}y^{(14)}(z)k+17a_{17}y^{(16)}(z)k+$
$19a_{19}y^{(18)}(z)k+21a_{21}y^{(20)}(z)k+23a_{23}y^{(22)}(z)k+25a_{25}y^{(24)}(z)k+27a_{27}y^{(26)}(z)k+29a_{29}y^{(28)}(z)k+$
$31a_{31}y^{(30)}(z)k+33a_{33}y^{(32)}(z)k+35a_{35}y^{(34)}(z)k+37a_{37}y^{(36)}(z)k-by(z)^3+(-a_{38}k^{38}+a_{37}k^{37}+a_{36}k^{36}-a_{35}k^{35}$
$(a_2+k\,(3a_3+k\,(k\,(15a_6+k\,(21a_7+k\,(k\,(45a_{10}+k\,(55a_{11}+k\,(k\,(91a_{14}+k\,(105a_{15}+k\,(k\,(153a$
$a_4y^{(4)}(z)+a_6y^{(6)}(z)+a_8y^{(8)}(z)+a_{10}y^{(10)}(z)+a_{12}y^{(12)}(z)+a_{14}y^{(14)}(z)+a_{16}y^{(16)}(z)+a_{18}y^{(18)}(z)+$
$a_{20}y^{(20)}(z) + a_{22}y^{(22)}(z) + a_{24}y^{(24)}(z) + a_{26}y^{(26)}(z) + a_{28}y^{(28)}(z) + a_{30}y^{(30)}(z) + a_{32}y^{(32)}(z) +$
$a_{34}y^{(34)}(z) + a_{36}y^{(36)}(z) + a_{38}y^{(38)}(z) = 0$

Constraints on coefficients from imaginary part of equation:

$a_{37} \to 38a_{38}k$

$a_{35} \to 36a_{36}k + 16872a_{38}k^3$

$a_{33} \to 34a_{34}k + 14280a_{36}k^3 + 8031072a_{38}k^5$

$a_{31} \to 32a_{32}k + 11968a_{34}k^3 + 6031872a_{36}k^5 + 3432709632a_{38}k^7$

$a_{29} \to 30a_{30}k + 9920a_{32}k^3 + 4452096a_{34}k^5 + 2270568960a_{36}k^7 + 1293660375040a_{38}k^9$

$a_{27} \to 28a_{28}k+8120a_{30}k^3+3222016a_{32}k^5+1463255552a_{34}k^7+747121070080a_{36}k^9+425725798916096a_{38}k^{11}$

$a_{25} \to 26a_{26}k+6552a_{28}k^3+2280096a_{30}k^5+915512832a_{32}k^7+416253167616a_{34}k^9+212560107282432a_{36}k^{11}+$
$121122994448203776a_{38}k^{13}$

$a_{23} \to 24a_{24}k+5200a_{26}k^3+1572480a_{28}k^5+553737600a_{30}k^7+222595276800a_{32}k^9+101219098705920a_{34}k^{11}+$
$51688333334937600a_{36}k^{13} + 29453574914647326720a_{38}k^{15}$

$a_{21} \to 22a_{22}k+4048a_{24}k^3+1052480a_{26}k^5+322058880a_{28}k^7+113541542400a_{30}k^9+45647828828160a_{32}k^{11}+$
$20757378307522560a_{34}k^{13} + 10599935211103518720a_{36}k^{15} + 6040164526685131898880a_{38}k^{17}$

$a_{19} \to 20a_{20}k+3080a_{22}k^3+680064a_{24}k^5+178921600a_{26}k^7+54813158400a_{28}k^9+19326701721600a_{30}k^{11}+$
$7770141612441600a_{32}k^{13}+3533311737034506240a_{34}k^{15}+1804316572693993881600a_{36}k^{17}+102815431796093$

$a_{17} \to 18a_{18}k+2280a_{20}k^3+421344a_{22}k^5+94140288a_{24}k^7+24796428800a_{26}k^9+7597393090560a_{28}k^{11}+$
$2678818983321600a_{30}k^{13}+1076998764764528640a_{32}k^{15}+489743069731226910720a_{34}k^{17}+250091590855363$
$1425097754127554639088844480a_{38}k^{21}$
$a_{15} \to 16a_{16}k+1632a_{18}k^3+248064a_{20}k^5+46387968a_{22}k^7+10376351744a_{24}k^9+2733453598720a_{26}k^{11}+$
$837515820072960a_{28}k^{13}+295306112919306240a_{30}k^{15}+118725592662115614720a_{32}k^{17}+539880259624277272$
$2756945868582467011608576 0a_{36}k^{21} + 157099139280164301414019891 20a_{38}k^{23}$
$a_{13} \to 14a_{14}k+1120a_{16}k^3+137088a_{18}k^5+21085440a_{20}k^7+3947525120a_{22}k^9+883115778048a_{24}k^{11}+$
$232643283353600a_{26}k^{13}+71280785877073920a_{28}k^{15}+25133441995004313600a_{30}k^{17}+10104710741630858035$
$4594909780970778352680960a_{34}k^{21}+2346430956531614743737139200a_{36}k^{23}+133706754224472485718302 23$
$a_{11} \to 12a_{12}k+728a_{14}k^3+69888a_{16}k^5+8656128a_{18}k^7+1332930560a_{20}k^9+249576198144a_{22}k^{11}+$
$55834388004864a_{24}k^{13}+14708733593681920a_{26}k^{15}+4506686150828359680a_{28}k^{17}+158904725372420751360 0$
$6388644615253488618700 80a_{32}k^{21}+2905104993801046825579315 20a_{34}k^{23}+1483517329944360438979740303$
$8453531797772231563605435849113 6a_{38}k^{27}$
$a_9 \to 10a_{10}k + 440a_{12}k^3 + 32032a_{14}k^5 + 3111680a_{16}k^7 + 385848320a_{18}k^9 + 59422904320a_{20}k^{11} +$
$11126417899520a_{22}k^{13}+2489170300469248a_{24}k^{15}+655734757395660800a_{26}k^{17}+200914020585819340800a_{28}$
$7084182537075441008640 0a_{30}k^{21}+2848142150785340025077760 0a_{32}k^{23}+1295134176935552764188662169 6a$
$6613716200248545320032702300160a_{36}k^{27} + 37686961299169105518790611995904 0a_{38}k^{29}$
$a_7 \to 240a_{10}k^3+12672a_{12}k^5+933504a_{14}k^7+90787840a_{16}k^9+11259076608a_{18}k^{11}+1733987205120a_{20}k^{13}+$
$324674387017728a_{22}k^{15}+72635234665365504a_{24}k^{17}+19134668627220889600a_{26}k^{19}+586277175482105462 78$
$2067199948150650018201600a_{30}k^{23}+831102145627092682901815296a_{32}k^{25}+377926640014202589716154417$
$1929915514608944237093118069964 80a_{36}k^{29}+10997244076938546056101545949475635 2a_{38}k^{31}+$
$8a_8k$
$a_5 \to 4032a_{10}k^5 + 215424a_{12}k^7 + 15887872a_{14}k^9 + 1545363456a_{16}k^{11} + 191651217408a_{18}k^{13} +$
$29515853365248a_{20}k^{15}+5526593941929984a_{22}k^{17}+1236393972835811328a_{24}k^{19}+325709541934503034880a_2$
$9979585956589344915456 0a_{28}k^{23}+351877924559857789131816 96a_{30}k^{25}+1414698652459581886638011187 2a$
$6433051715363147456977060233216a_{34}k^{29}+32850942477341318233020265282928 64a_{36}k^{31}+187194636162 08$
$6a_6k + 112a_8k^3$
$a_3 \to 32640a_{10}k^7+1745920a_{12}k^9+128780288a_{14}k^{11}+12526223360a_{16}k^{13}+1553465966592a_{18}k^{15}+$
$239246490992640a_{20}k^{17}+44796883073761280a_{22}k^{19}+10021832059523170304a_{24}k^{21}+26401021049178161152$
$8089147691031213543260 16a_{28}k^{25}+285221502512012477144760320a_{30}k^{27}+1146711535715356052937087385$
$5214435313863701306828613536972 8a_{34}k^{31} + 266279710045645811376362187286118 40a_{36}k^{33} +$
$1517342568595169774868528594496467763 2a_{38}k^{35} + 4a_4k + 40a_6k^3 + 896a_8k^5$
$\mathrm{C0} \to a_1-79360a_{10}k^9-4245504a_{12}k^{11}-313155584a_{14}k^{13}-30460116992a_{16}k^{15}-3777576173568a_{18}k^{17}-$
$2a_2k - 581777702256640a_{20}k^{19} - 108932957168730112a_{22}k^{21} - 243701732761644564 48a_{24}k^{23} -$

$$641995848494540757401 6a_{26}k^{25} - 196704484491043087686041 6a_{28}k^{27} - 693575525634287935244206080a_{30}k^2$$

$$27884680822800541747746596454 4a_{32}k^{31} - 126799861926498005417315327279104a_{34}k^{33} - 6475146096423199$$

$$3689734680983224627041718890218179788 8a_{38}k^{37} - 8a_4k^3 - 96a_6k^5 - 2176a_8k^7$$

Constraints on coefficients from real part of equation:

$$b \to -\frac{11105234097296689238256918490971069973214389075968000000000a_{38}\chi^{19}}{A^2}$$

$$a_{36} \to -703a_{38}k^2 - 28291a_{38}$$

$$a_{34} \to 73815a_{38}k^4 + 17823330a_{38}k^2 + 372776523a_{38}$$

$$a_{32} \to -2760681a_{38}k^6 - 1666481355a_{38}k^4 - 209127629403a_{38}k^2 - 3039379318393a_{38}$$

$$a_{30} \to 48903492a_{38}k^8 + 55104983472a_{38}k^6 + 17287884030648a_{38}k^4 + 1507532141922928a_{38}k^2 +$$

$$17182495115092516a_{38}$$

$$a_{28} \to -472733756a_{38}k^{10} - 856095278940a_{38}k^8 - 501348636888792a_{38}k^6 - 109296080289412280a_{38}k^4 -$$

$$7474385375065244460a_{38}k^2 - 71524858460924749356a_{38}$$

$$a_{26} \to 2707475148a_{38}k^{12} + 7191200343096a_{38}k^{10} + 6768206597998692a_{38}k^8 + 2754261223293189456a_{38}k^6 +$$

$$4708862786291104009 80a_{38}k^4 + 2703639649822955525656 8a_{38}k^2 + 2272275232048606348829 40a_{38}$$

$$a_{24} \to -9669554100a_{38}k^{14} - 35411213810700a_{38}k^{12} - 48881492096657220a_{38}k^{10} - 3196910348465309190 0a_{38}k$$

$$1020253603696405868790 0a_{38}k^6 - 1464471476987434243064100a_{38}k^4 - 7384894504157970633695550 0a_{38}k^2 -$$

$$5634747400165871680375571 40a_{38}$$

$$a_{22} \to 22239974430a_{38}k^{16} + 107401044085200a_{38}k^{14} + 20441351240420292 0a_{38}k^{12} + 1960771680392056303 20a$$

$$1005678552215028642093 00a_{38}k^8 + 2694627517656879007237944 0a_{38}k^6 + 3397051471912666491499953000a_3$$

$$1555190282445780583783657706 40a_{38}k^2 + 1106197407114626567662836917310a_{38}$$

$$a_{20} \to -33578000610a_{38}k^{18} - 206747009864010a_{38}k^{16} - 51889583917989972 0a_{38}k^{14} - 6862700881372197061 20$$

$$5162483234703813696077 40a_{38}k^{10} - 22230677020669251809713038 0a_{38}k^8 - 5231459266745506396909927620$$

$$5987482587416255247567082169640a_{38}k^4 - 25553160104347873713011532789861 0a_{38}k^2 - 1733407305648580$$

$$a_{18} \to 33578000610a_{38}k^{20} + 256744652772300a_{38}k^{18} + 821585078701507890a_{38}k^{16} + 1432871612594194990800$$

$$1486169416051097882204100a_{38}k^{12} + 9386285853171461875212171 60a_{38}k^{10} + 3549918788148736483617450 88$$

$$7584144610727256646918304081544 0a_{38}k^6 + 8091834033043493342453652050122650a_{38}k^4 + 3293473880732 3$$

$$2175787090985907436048495009322534554a_{38}$$

$$a_{16} \to -22239974430a_{38}k^{22} - 206747009864010a_{38}k^{20} - 821585078701507890a_{38}k^{18} - 1826911306057598613 27$$

$$2498724402811186549200300a_{38}k^{14} - 217591172050792979834463978 0a_{38}k^{12} - 1206972387970570404429933$$

$$4144193305147393810637501873129 40a_{38}k^8 - 8253670713704363209302725091125103 0a_{38}k^6 -$$

$$8398358395867372203383437279439022450a_{38}k^4 - 3328954249208438377154197364263477867 62a_{38}k^2 -$$

$$2186364069871001251883096850041039477214a_{38}$$

$$a_{14} \to 9669554100a_{38}k^{24} + 107401044085200a_{38}k^{22} + 518895839179899720a_{38}k^{20} + 1432871612594194990800a$$

$$2498724402811186549200300a_{38}k^{16} + 2869334136933533800014909600a_{38}k^{14} + 2194495250855582553508969 6$$

$$1105118214705971682836667166167840a_{38}k^{10}+353728744873044137541545361048218700a_{38}k^{8}+\blacksquare$$

$$671868671669389776270674982355121796 00a_{38}k^{6}+6657908498416876754308394728526955735240a_{38}k^{4}+\blacksquare$$

$$26236368838452015022597162200492473726 5680a_{38}k^{2}+175051825051096752072258380651226150314645 2a$$

$$a_{12}\to -2707475148a_{38}k^{26}-35411213810700a_{38}k^{24}-204413512404202920a_{38}k^{22}-6862700881372197061 20a_{3}$$

$$1486169416051097882204100a_{38}k^{18}-217591172050792979834463978 0a_{38}k^{16}-219449525085558255350896 96$$

$$1523723599064294289971768365473840a_{38}k^{12}-715318128521044811472902841230842260a_{38}k^{10}-\blacksquare$$

$$2183573182925516772879693692654145837 00a_{38}k^{8}-40391311557062385642804261353063531460456a_{38}k^{6}-$$

$$3979182607165222278427236267074691848529480a_{38}k^{4}-159297160796498044385755126392615796786327 1$$

$$1106296667702690775191507783667838224282662332a_{38}$$

$$a_{10}\to 472733756a_{38}k^{28}+7191200343096a_{38}k^{26}+4888149209665722 0a_{38}k^{24}+19607716803920563032 0a_{38}k^{22}-$$

$$5162483234703813696077 40a_{38}k^{20}+9386285853171461875212171 60a_{38}k^{18}+12069723879705740442993330 0$$

$$1105118214705971682836667166167840a_{38}k^{14}+715318128521044811472902841230842260a_{38}k^{12}+\blacksquare$$

$$3202574001624091266890217415892747227 60a_{38}k^{10}+952080915273613375866100446179354670139 32a_{38}k^{8}+$$

$$1750840347152697802507983957512864413352971 2a_{38}k^{6}+175226876876147848824330639031877376464959$$

$$7301558006837759116263951372207732280265571 3912a_{38}k^{2}+543492756512530454923026571142605519930$$

$$a_{8}\to -48903492a_{38}k^{30}-856095278940a_{38}k^{28}-6768206597998692a_{38}k^{26}-31969103484653091900a_{38}k^{24}-\blacksquare$$

$$1005678552215028642093 00a_{38}k^{22}-22230677020669251809713038 0a_{38}k^{20}-3549918788148736483617450885$$

$$4144193305147393810637501873129 40a_{38}k^{16}-353728744873044137541545361048218700a_{38}k^{14}-\blacksquare$$

$$2183573182925516772879693692654145837 00a_{38}k^{12}-952080915273613375866100446179354670139 32a_{38}k^{10}$$

$$2813850557923978611173545646002817807 1744180a_{38}k^{8}-525680630628443546472991917095632129394879$$

$$5476168505128319337197963529155799210 19917854340a_{38}k^{4}-244571740430638704715361957014172483 96$$

$$2026998348113364735853767993921310171024526220305 64a_{38}$$

$$a_{6}\to 2760681a_{38}k^{32}+55104983472a_{38}k^{30}+501348636888792a_{38}k^{28}+2754261223293189456a_{38}k^{26}+\blacksquare$$

$$1020253603696405868790 0a_{38}k^{24}+269462751765687900723794 40a_{38}k^{22}+523145926674550639690992762 00a$$

$$7584144610727256646918304081544 0a_{38}k^{18}+8253670713704363209302725091125103 0a_{38}k^{16}+$$

$$671868671669389776270674982355121796 00a_{38}k^{14}+403913115570623856428042613530635314604 56a_{38}k^{12}+$$

$$1750840347152697802507983957512864413352971 2a_{38}k^{10}+525680630628443546472991917095632129394879$$

$$1022218120957286276276953192109082519237179994768a_{38}k^{6}+1141334788676313955338355799399471591$$

$$5675595374717421260390550382979668478868673416855792a_{38}k^{2}+553083388693197293871821588933545 7$$

$$a_{4}\to -73815a_{38}k^{34}-1666481355a_{38}k^{32}-17287884030648a_{38}k^{30}-109296080289412280a_{38}k^{28}-$$

$$4708862786291104009 80a_{38}k^{26}-14644714769874342430641 00a_{38}k^{24}-33970514719126664914999530 00a_{38}k^{2}$$

$$5987482587416255247567082169640a_{38}k^{20}-8091834033043493342453652050122650a_{38}k^{18}-8398358395867 3$$

$$6657908498416876754308394728526955735240a_{38}k^{14}-3979182607165222278427236267074691848529480a_{38}$$

$$1752268768761478488243306390318773764649598452a_{38}k^{10}-5476168505128319337197963529155799210199$$

$$1141334788676313955338355799399471591853847246268 40a_{38}k^6-1418898843679355315097637595744917 1$$

$$8296250830397959408077323834003186451740061626966583 75a_{38}k^2-1038517696323090891702124405911 1$$

$$a_2 \to 703a_{38}k^{36}+17823330a_{38}k^{34}+209127629403a_{38}k^{32}+1507532141922928a_{38}k^{30}+747438537506524446 0a_3$$

$$2703639649822955525656 8a_{38}k^{26}+7384894504157970633695550 0a_{38}k^{24}+1555190282445780583783657706 40$$

$$2555316010434787371301153278986 10a_{38}k^{20}+3293473880732302824856249913505499 00a_{38}k^{18}+$$

$$3328954249208438377154197364263477867 62a_{38}k^{16}+2623636883845201502259716220049247372656 80a_{38}k^1$$

$$1592971607964980443857551263926157967863271 32a_{38}k^{12}+7301558006837759116263951372207732280265 5$$

$$2445717404306387047153619570141724839686815527718 0a_{38}k^8+5675595374717421260390550382979668 47$$

$$8296250830397959408077323834003186451740061626966583 75a_{38}k^4+6231106177938545350212746435466 6$$

$$1196241465964139900364910073696949298887059808189231421875a_{38}$$

$$\omega \to -a_1k+37a_{38}k^{38}+990185a_{38}k^{36}+12301625259a_{38}k^{34}+94220758870183a_{38}k^{32}+4982923583376829 64a_{38}k$$

$$1931171178444968232612a_{38}k^{28}+5680688080121515872073500a_{38}k^{26}+1295991902038150486486381422 0a_{38}$$

$$2323014554940715792091957526351 0a_{38}k^{22}+3293473880732302824856249913505499 0a_{38}k^{20}+$$

$$3698838054676042641282441515848308741 8a_{38}k^{18}+3279546104806501877824645275061559215821 0a_{38}k^{16}+$$

$$2275673725664257776939358948465939954090387 6a_{38}k^{14}+1216926334472959852710658562034622046710 92$$

$$4891434808612774094307239140283449679373631055436a_{38}k^{10}+1418898843679355315097637595744917119$$

$$2765416943465986469359107944667728817246687208988861 25a_{38}k^6+3115553088969272675106373217733 3$$

$$1196241465964139900364910073696949298887059808189231421875a_{38}k^2-6355650712136713777994940194$$

y(z) - function:

$$\frac{274877906944a^{19}A}{\left(4a^2e^z+\chi e^{-z}\right)^{19}}$$

u(x, t) - function:

$$\frac{274877906944a^{19}Ae^{i(kx-\omega t)}}{\left(4a^2e^{\mathrm{C0}t+x}+\chi e^{-\mathrm{C0}t-x}\right)^{19}}$$