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A Summation Formula Tangled with Hypergeometric Function and Recurrence Relation

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A Summation Formula Tangled with Hypergeometric Function and Recurrence Relation

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I. Introduction

a) Generalized Hypergeometric Functions

A generalized hypergeometric function ${}_pF_q(a_1, ...a_p; b_1, ...b_q; z)$ is a function which can be defined in the form of a hypergeometric series, i.e., a series for which the ratio of successive terms can be written

$$\frac{c_{k+1}}{c_k} = \frac{P(k)}{Q(k)} = \frac{(k+a_1)(k+a_2)...(k+a_p)}{(k+b_1)(K+b_2)...(k+b_q)(k+1)}\ z. \tag{1}$$

Where $k+1$ in the denominator is present for historical reasons of notation, and the resulting generalized hypergeometric function is written

$${}_pF_q\left[\begin{array}{ccc} a_1, a_2, \cdots, a_p & ; & \\ & & z \\ b_1, b_2, \cdots, b_q & ; & \end{array}\right] = \sum_{k=0}^{\infty} \frac{(a_1)_k (a_2)_k \cdots (a_p)_k z^k}{(b_1)_k (b_2)_k \cdots (b_q)_k k!} \tag{2}$$

or

$${}_pF_q\left[\begin{array}{ccc} (a_p) & ; & \\ & & z \\ (b_q) & ; & \end{array}\right] \equiv {}_pF_q\left[\begin{array}{ccc} (a_j)_{j=1}^{p} & ; & \\ & & z \\ (b_j)_{j=1}^{q} & ; & \end{array}\right] = \sum_{k=0}^{\infty} \frac{((a_p))_k z^k}{((b_q))_k k!} \tag{3}$$

where the parameters $b_1, b_2, \cdots, b_q$ are neither zero nor negative integers and p, q are non-negative integers.

The ${}_pF_q$ series converges for all finite z if $p \leq q$, converges for $|\ z\ | < 1$ if $p \neq q+1$, diverges for all z , $z \neq 0$ if $p > q+1$.

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The ${}_pF_q$ series absolutely converges for $\mid z \mid = 1$ if $R(\zeta) < 0$, conditionally converges for $\mid z \mid = 1, z \neq 0$ if $0 \leq R(\zeta) < 1$, diverges for $\mid z \mid = 1$, if $1 \leq R(\zeta)$, $\zeta = \sum_{i=1}^{p} a_i - \sum_{i=0}^{q} b_i$.

The function ${}_2F_1(a, b; c; z)$ corresponding to $p = 2, q = 1$, is the first hypergeometric function to be studied (and, in general, arises the most frequently in physical problems), and so is frequently known as "the" hypergeometric equation or, more explicitly, Gauss's hypergeometric function (Gauss 1812, Barnes 1908). To confuse matters even more, the term "hypergeometric function" is less commonly used to mean closed form, and "hypergeometric series" is sometimes used to mean hypergeometric function.

The hypergeometric functions are solutions of Gaussian hypergeometric linear differential equation of second order

$$z(1-z)y'' + [c - (a+b+1)z]y' - aby = 0 \tag{4}$$

The solution of this equation is

$$y = A_0\Big[1 + \frac{ab}{1!\ c}z + \frac{a(a+1)b(b+1)}{2!\ c(c+1)}z^2 + \cdots\cdots\Big] \tag{5}$$

This is the so-called regular solution,denoted

$${}_2F_1(a, b; c; z) = \Big[1 + \frac{ab}{1!\ c}z + \frac{a(a+1)b(b+1)}{2!\ c(c+1)}z^2 + \cdots\cdots\Big] = \sum_{k=0}^{\infty} \frac{(a)_k\ (b)_k z^k}{(c)_k k!} \tag{6}$$

which converges if c is not a negative integer for all of $\mid z \mid < 1$ and on the unit circle $\mid z \mid = 1$ if $R(c - a - b) > 0$.

It is known as Gauss hypergeometric function in terms of Pochhammer symbol $(a)_k$ or generalized factorial function.

Many of the common mathematical functions can be expressed in terms of the hypergeometric function, or as limiting cases of it. Some typical examples are

$$(1-z)^{-a} = z\ {}_2F_1(1, 1; 2; -z) \tag{7}$$

$$\sin^{-1} z = z\ {}_2F_1(\frac{1}{2}, \frac{1}{2}; \frac{3}{2}; z^2) \tag{8}$$

The special case of (1.3.4) when $a = c$ and $b = 1$, or $a = 1$ and $b = c$, yields the elementary geometric series

$$\sum_{n=0}^{\infty} z^n = 1 + z + z^2 + z^3 + \cdots + z^n + \cdots \tag{9}$$

Hence the term "Hypergeometric" is given. The term hypergeometric was first used by Wallis in his work "Arithmetrica Infinitorum". Hypergeometric series or more precisely Gauss series is due to Carl Friedrich Gauss(1777-1855) who in year 1812 introduced and studied this series in his thesis presented at Gottingen and gave the F-notation for it.

Here z is a real or complex variable. If c is zero or negative integer, the series (6) does not exist and hence the function ${}_2F_1(a, b;\ c;\ z)$ is not defined unless one of the parameters

Notes

a or b is also a negative integer such that $-c < -a$. If either of the parameters a or b is a negative integer, say $-m$ then in this case (6) reduce to the hypergeometric polynomial defined as

$$ {}_2F_1(-m, b;\, c;\, z) = \sum_{n=0}^{m} \frac{(-m)_n (b)_n\, z^n}{(c)_n\, n!} \tag{10} $$

Notes

b) Generalized Ordinary Hypergeometric Function of One Variable

The generalized Gaussian hypergeometric function of one variable is defined as follows

$$ {}_AF_B \left[\begin{matrix} a_1,\, a_2,\, a_3, \ldots, a_A \\ \\ b_1,\, b_2,\, b_3, \ldots, b_B \end{matrix} \begin{matrix} ; \\ \\ ; \end{matrix} \; z \right] = \sum_{n=0}^{\infty} \frac{(a_1)_n\, (a_2)_n\, (a_3)_n \cdots (a_A)_n\, z^n}{(b_1)_n\, (b_2)_n\, (b_3)_n \cdots (b_B)_n\, n!} \tag{11} $$

$$ \text{or,} \qquad {}_AF_B \left[\begin{matrix} (a_A) \\ \\ (b_B) \end{matrix} \begin{matrix} ; \\ \\ ; \end{matrix} \; z \right] = \sum_{n=0}^{\infty} \frac{[(a_A)]_n\, z^n}{[(b_B)]_n\, n!} \tag{12} $$

where for the sake of convenience (in the contracted notation), (a_A) denotes thearray of "A" number of parameters given by a_1, a_2, a_3, …, a_A. The denominatorparameters are neither zero nor negative integers. The numerator parameters may be zero and negative integers. A and B are positive integers or zero. Empty sum is to be interpreted as zero and empty product as unity.

$$ \sum_{n=a}^{b} \text{ and } \prod_{n=a}^{b} \text{ are empty if } b < a. $$

$$ [(a_A)]_{-n} = \frac{(-1)^{nA}}{[1 - (a_A)]_n} \tag{13} $$

$$ [(a_A)]_n = (a_1)_n (a_2)_n (a_3)_n \cdots (a_A)_n = \prod_{m=1}^{A} (a_m)_n = \prod_{m=1}^{A} \frac{\Gamma(a_m + n)}{\Gamma(a_m)} \tag{14} $$

where a_1, a_2, a_3, …, a_A; b_1, b_2, b_3, …, b_B and z may be real and complex numbers.

$$ {}_3F_2 \left[\begin{matrix} a,\, b,\, 1 \\ \\ c,\, 2 \end{matrix} \begin{matrix} ; \\ \\ ; \end{matrix} \; z \right] = \frac{(c-1)}{(a-1)(b-1)\, z} \times $$

$$ \times \left\{ {}_2F_1 \left[\begin{matrix} a-1,\, b-1 \\ \\ c-1 \end{matrix} \begin{matrix} ; \\ \\ ; \end{matrix} \; z \right] - 1 \right\} \tag{15} $$

The convergence conditions of ${}_AF_B$ are given below

Suppose that numerator parameters are neither zero nor negative integers (otherwise question of convergence will not arise).

(i) If $A \leq B$, then series ${}_AF_B$ is always convergent for all finite values of z(real or complex) i.e., $|z| < \infty$.

(ii) If $A = B + 1$ and $|z| < 1$, then series ${}_AF_B$ is convergent.

(iii) If $A = B + 1$ and $|z| > 1$, then series ${}_AF_B$ is divergent.

(iv) If $A = B + 1$ and $|z| = 1$, then series ${}_AF_B$ is absolutely convergent, when

$$\mathrm{Re}\Big\{\sum_{m=1}^{B} b_m - \sum_{n=1}^{A} a_n\Big\} > 0$$

(v) If $A = B + 1$ and $z = 1$, then series ${}_AF_B$ is convergent, when

$$\mathrm{Re}\Big\{\sum_{m=1}^{B} b_m - \sum_{n=1}^{A} a_n\Big\} > 0$$

(vi) If $A = B + 1$ and $z = 1$, then series ${}_AF_B$ is divergent, when

$$\mathrm{Re}\Big\{\sum_{m=1}^{B} b_m - \sum_{n=1}^{A} a_n\Big\} \leq 0$$

(vii) If $A = B + 1$ and $z = -1$, then series ${}_AF_B$ is convergent, when

$$\mathrm{Re}\Big\{\sum_{m=1}^{B} b_m - \sum_{n=1}^{A} a_n\Big\} > -1$$

(viii) If $A = B + 1$ and $|z| = 1$, but $z \neq 1$, then series ${}_AF_B$ is conditionally convergent, when

$$-1 < \mathrm{Re}\Big\{\sum_{m=1}^{B} b_m - \sum_{n=1}^{A} a_n\Big\} \leq 0$$

(ix) If $A > B + 1$, then series ${}_AF_B$ is convergent, when $z = 0$.

(x) If $A = B + 1$ and $|z| \geq 1$, then it is defined as an analytic continuation of this series.

(xi) If $A = B + 1$ and $|z| = 1$, then series ${}_AF_B$ is divergent, when

$$\mathrm{Re}\Big\{\sum_{m=1}^{B} b_m - \sum_{n=1}^{A} a_n\Big\} \leq -1$$

Notes

(xii) If $A > B + 1$, then a meaningful independent attempts were made to define MacRobert's E-function, Meijer's G-function, Fox's H-function and its related functions.

(xiii) If one or more of the numerator parameters are zero or negative integers, then series ${}_AF_B$ terminates for all finite values of z i.e., ${}_AF_B$ will be a hypergeometric polynomial and the question of convergence does not enter the discussion.

Notes

Contiguous Relation is defined by
[E. D. p.51(10)]

$$(a-b)\ {}_2F_1\left[\begin{matrix} a,\ b\ ; \\ c\ ; \end{matrix}\ z\right] = a\ {}_2F_1\left[\begin{matrix} a+1,\ b\ ; \\ c\ ; \end{matrix}\ z\right] - b\ {}_2F_1\left[\begin{matrix} a,\ b+1\ ; \\ c\ ; \end{matrix}\ z\right] \tag{16}$$

Gauss second summation theorem is defined by [Prud., 491(7.3.7.8)]

$${}_2F_1\left[\begin{matrix} a,\ b\ ; \\ \frac{a+b+1}{2}\ ; \end{matrix}\ \frac{1}{2}\right] = \frac{\Gamma(\frac{a+b+1}{2})\ \Gamma(\frac{1}{2})}{\Gamma(\frac{a+1}{2})\ \Gamma(\frac{b+1}{2})} \tag{17}$$

$$= \frac{2^{(b-1)}\ \Gamma(\frac{b}{2})\ \Gamma(\frac{a+b+1}{2})}{\Gamma(b)\ \Gamma(\frac{a+1}{2})} \tag{18}$$

In a monograph of Prudnikov et al., a summation theorem is given in the form [Prud., p.491(7.3.7.8)]

$${}_2F_1\left[\begin{matrix} a,\ b\ ; \\ \frac{a+b-1}{2}\ ; \end{matrix}\ \frac{1}{2}\right] = \sqrt{\pi}\ \left[\frac{\Gamma(\frac{a+b+1}{2})}{\Gamma(\frac{a+1}{2})\ \Gamma(\frac{b+1}{2})} + \frac{2\ \Gamma(\frac{a+b-1}{2})}{\Gamma(a)\ \Gamma(b)}\right] \tag{19}$$

Now using Legendre's duplication formula and Recurrence relation for Gamma function, the above theorem can be written in the form

$${}_2F_1\left[\begin{matrix} a,\ b\ ; \\ \frac{a+b-1}{2}\ ; \end{matrix}\ \frac{1}{2}\right] = \frac{2^{(b-1)}\ \Gamma(\frac{a+b-1}{2})}{\Gamma(b)}\ \left[\frac{\Gamma(\frac{b}{2})}{\Gamma(\frac{a-1}{2})} + \frac{2^{(a-b+1)}\ \Gamma(\frac{a}{2})\ \Gamma(\frac{a+1}{2})}{\{\Gamma(a)\}^2} + \frac{\Gamma(\frac{b+2}{2})}{\Gamma(\frac{a+1}{2})}\right] \tag{20}$$

Recurrence relation is defined by

$$\Gamma(z+1) = z\ \Gamma(z) \tag{21}$$

II. Main Summation Formula

$$
{}_2F_1\left[\begin{array}{ccc} a, & b & ; \\ \frac{a+b+41}{2} & ; & \end{array}\ \frac{1}{2}\right] = \frac{2^b\ \Gamma(\frac{a+b+41}{2})}{(a-b)\ \Gamma(b)}\times
$$

$$
\times\left[\frac{\Gamma(\frac{b}{2})}{\Gamma(\frac{a+1}{2})}\ \left\{\frac{524288a(-8200794532637891559375+201250137233979761523 75a)}{\left[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\right]\left[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\right]}+\right.
$$

$$
+\frac{524288a(-196889934876028678982 25a^2+1079270003047184030074 5a^3)}{\left[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\right]\left[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\right]}+
$$

$$
+\frac{524288a(-3824294822931302783964a^4+946995223404049011324a^5)}{\left[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\right]\left[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\right]}+
$$

$$
+\frac{524288a(-171930790626988570804a^6+236152622138464068 04a^7)}{\left[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\right]\left[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\right]}+
$$

$$
+\frac{524288a(-250587478729164649 8a^8+208251057899323218a^9-13663776163658478a^{10})}{\left[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\right]\left[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\right]}+
$$

$$
+\frac{524288a(710084079834558a^{11}-29186718196012a^{12}+942715036492a^{13})}{\left[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\right]\left[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\right]}+
$$

$$
+\frac{524288a(-23625216132a^{14}+449681892a^{15}-6278151a^16+60591a^{17}-361a^{18}+a^{19})}{\left[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\right]\left[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\right]}+
$$

$$
+\frac{524288a(3322245309452165674462 5b-2678401436788690464915 0ab)}{\left[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\right]\left[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\right]}+
$$

$$
+\frac{524288a(6656941611306022627516 5a^2b-1819726185841839737640 0a^3b)}{\left[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\right]\left[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\right]}+
$$

$$
+\frac{524288a(1190764959319051136850 0a^4b-1732720204487419142472a^5b)}{\left[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\right]\left[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\right]}+
$$

$$
+\frac{524288a(5077248600748089124 68a^6b-4457554985170063358 4a^7b)}{\left[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\right]\left[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\right]}+
$$

$$
\left.+\frac{524288a(7096841648258109774a^8b-394251249479137908a^9b+37227237877945830a^{10}b)}{\left[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\right]\left[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\right]}+\right.
$$

$$+\frac{524288a(-1316694562355952a^{11}b+76320137288772a^{12}b-1663027017288a^{13}b)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(58788536196a^{14}b-716920464a^{15}b+14574729a^{16}b-75582a^{1}7b+741a^{18}b)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(246494733946096407817 5b^2+8970915492707914633855 5ab^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-1648118102368321868637 6a^2b^2+4035765117035231492296 8a^3b^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-4673222221480836168652a^4b^2+3176905101637503805348a^5b^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-2370220872204284306 48a^6b^2+7261623651230123021 6a^7b^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-3554713715058825462a^8b^2+588835800871070610a^9b^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-18785390190548696a^{10}b^2+1828505864702504a^{11}b^2-36535526629420a^{12}b^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(2155023393796a^{13}b^2-24404420040a^{14}b^2+861332472a^{15}b^2-4194801a^{16}b^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(82251a^{17}b^2+2871822593783591482729 5b^3+3318894504681786671472ab^3)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(5029136226987451157872 8a^2b^3-3438152189587572233712a^3b^3)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(8208505768506397623204a^4b^3-4794711985863170935 20a^5b^3)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(3221777528433933421 68a^6b^3-1351791004842640190 4a^7b^3)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(411856753012108146 6a^{8}b^{3}-117765498111209520a^{9}b^{3})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(19370822163507672a^{10}b^{3}-356401367234640a^{11}b^{3}+34220151840420a^{12}b^{3})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-363586707120a^{13}b^{3}+20899430760a^{14}b^{3}-96946512a^{15}b^{3}+3262623a^{16}b^{3})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(374352766678635583222 8b^{4}+2373503933616846650583 6ab^{4})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(106559807545780148274 0a^{2}b^{4}+9808909042980361520700a^{3}b^{4})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-307540391879642734540a^{4}b^{4}+7118592916301886848 92a^{5}b^{4})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-228633260908120828 76a^{6}b^{4}+1483422896201781220 4a^{7}b^{4})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-362192635506367380a^{8}b^{4}+106961337355063620a^{9}b^{4})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-1770421086614180a^{10}b^{4}+281900758731956a^{11}b^{4}-2778732507460a^{12}b^{4})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(256594423540a^{13}b^{4}-1127935380a^{14}b^{4}+61523748a^{15}b^{4})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(340526644402847241565 2b^{5}+1592826112836059973560ab^{5})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(549933017236730371020 4a^{2}b^{5}+1277479220245873721 44a^{3}b^{5})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(828745355724256566596a^{4}b^{5}-1324432629469068319 2a^{5}b^{5})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

Notes

Notes

$$+\frac{524288a(29612710418417746620a^6b^5-541711449908579808a^7b^5)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(335036903394444108a^8b^5-4701727850267448a^9b^5+1325553122001108a^{10}b^5)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-11743720135056a^{11}b^5+1781300804556a^{12}b^5-7282174536a^{13}b^5)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(635745396a^{14}b^5+3073404233196334576 76b^6+1340384188957112471692ab^6)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(2112466849078252190 16a^2b^6+5125933234915445206 80a^3b^6)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(6855294547498745348a^4b^6+3387133151851979530 0a^5b^6)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-2893822962180069 92a^6b^6+623272853264512880a^7b^6)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-6430101458336556a^8b^6+376072220682958 8a^9b^6-28033056115064a^{10}b^6)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(7469623102760a^{11}b^6-27375582052a^{12}b^6+3910797436a^{13}b^6)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(1082693274153534359 16b^7+7017944512868601166 4ab^7)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(1623715819024678316 08a^2b^7+1187318494845439528 0a^3b^7)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(2231816747049556581 2a^4b^7+1785099899444347 20a^5b^7)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(7039697531381143 20a^6b^7-321139739659939 2a^7b^7+6647435147415348a^8b^7)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-35833247976240a^9b^7+19709827528248a^{10}b^7-60338017584a^{11}b^7)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(15084504396a^12b^7+6586460453221363806b^8+2369486381391340029 0ab^8)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(5175623316897888426a^2b^8+829462863340151640 6a^3b^8)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(316411422061594860a^4b^8+48458647094148891 6a^5b^8+2291343736653972a^6b^8)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(7438485518649900a^7b^8-16894761676650a^8b^8+33539087889450a^9b^8)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(-73204212510a^{10}b^8+37711260990a^{11}b^8+1190397299268527454b^9)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(882649351319057036ab^9+164420527347855321 4a^2b^9+162921387014111440a^3b^9)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(2005378436745483 80a^4b^9+4108083073246152a^5b^9+5284711076616972a^6b^9)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(13647662542800a^7b^9+37267793684550a^8b^9-32820602100a^9b^9)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(62359143990a^{10}b^9+48653715410164722b^{10}+1541579063855902 50ab^{10})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(37967523155613480a^2b^{10}+48186270011142120a^3b^{10}+2366386284722460a^4b^{10})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(2360734480596492a^5b^{10}+24584628748680a^6b^{10}+27105250989960a^7b^{10})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(29538541890a^8b^{10}+68923264410a^9b^{10}+5046299073566322b^{11})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

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$$+\frac{524288a(3908213830318096ab^{11}+6287173301234072a^2b^{11}+671998070250416a^3b^{11})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(647217596189164a^4b^{11}+15334926887280a^5b^{11}+12807631555992a^6b^{11})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(53239427280a^7b^{11}+51021117810a^8b^{11}+1360446455668 04b^{12})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(390969013904092ab^{12}+96486711472788a^2b^{12}+104212054616124a^3b^{12})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(4990312383420a^4b^{12}+3859957069332a^5b^{12}+35197176924a^6b^{12})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(25140840660a^7b^{12}+8455024465236b^{13}+6364613182648ab^{13})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(9131066181020a^2b^{13}+886583500880a^3b^{13}+718310791660a^4b^{13})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(12634884024a^5b^{13}+8122425444a^6b^{13}+1432496072 28b^{14}+377940383964ab^{14})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(82385891640a^2b^{14}+78284308440a^3b^{14}+2600776620a^4b^{14}+1676056044a^5b^{14})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(5307418428b^{15}+3532333168ab^{15}+4577615432a^2b^{15}+300782768a^3b^{15})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(211915132a^4b^{15}+50652537b^{16}+122581407ab^{16}+18177471a^2b^{16})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(15380937a^3b^{16}+1047033b^{17}+493506ab^{17}+575757a^2b^{17})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288a(4199b^{18}+9139ab^{18}+39b^{19})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{524288b(-8200794532637891559375+3322245309452165674462 5a)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(24649473394609640781 75a^2+28718225937835914827295a^3)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(37435276667863558322 28a^4+34052664440284724156 52a^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(30734042331963345767 6a^6+108269327415353435916a^7)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(65864604532213638 06a^8+119039729926852745 4a^9+48653715410164722a^{10})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(5046299073566322a^{11}+136044645566804a^{12}+8455024465236a^{13})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(143249607228a^{14}+5307418428a^{15}+50652537a^{16}+1047033a^{17}+4199a^{18})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(39a^19+20125013723397976152375b-26784014367886904649150ab)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(89709154927079146338555a^2b+331889450468178667 1472a^3b)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(23735039336168466505836a^4b+159282611283605997356 0a^5b)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(13403841889571124716 92a^6b+701794451286860116 64a^7b)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(23694863813913400290a^8b+88264935131905703 6a^9b+154157906385590250a^{10}b)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(3908213830318096a^{11}b+390969013904092a^{12}b+6364613182648a^{13}b)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

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$$+\frac{524288b(377940383964a^{14}b+3532333168a^{15}b+122581407a^{16}b+493506a^{17}b)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(9139a^{1}8b-196889934876028678982 25b^{2}+665694161130602262751 65ab^{2})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-164811810236832186863 76a^{2}b^{2}+502913622698745115787 28a^{3}b^{2})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(106559807545780148274 0a^{4}b^{2}+549933017236730371020 4a^{5}b^{2})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(211246684907825219016a^{6}b^{2}+162371581902467831608a^{7}b^{2})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(517562331689788842 6a^{8}b^{2}+164420527347855321 4a^{9}b^{2})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(379675231556134 80a^{10}b^{2}+628717330123407 2a^{11}b^{2}+964867114727 88a^{12}b^{2})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(9131066181020a^{13}b^{2}+82385891640a^{14}b^{2}+4577615432a^{15}b^{2}+18177471a^{16}b^{2})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(575757a^{17}b^{2}+1079270003047184030074 5b^{3}-1819726185841839737640 0ab^{3})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(4035765117035231492296 8a^{2}b^{3}-3438152189587572233712a^{3}b^{3})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(9808909042980361520700a^{4}b^{3}+1277479220245873721 44a^{5}b^{3})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(5125933234915445206 80a^{6}b^{3}+1187318494845439528 0a^{7}b^{3})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(8294628633401516406a^{8}b^{3}+162921387014111440a^{9}b^{3})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(48186270011142120a^{10}b^3+671998070250416a^{11}b^3+1042120546161 24a^{12}b^3)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(886583500880a^{13}b^3+78284308440a^{14}b^3+300782768a^{15}b^3+15380937a^{16}b^3)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-382429482293130278396 4b^4+11907649593190511368500ab^4)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-467322222148083616865 2a^2b^4+8208505768506397623204a^3b^4)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-307540391879642734540a^4b^4+828745355724256566596a^5b^4)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(685529454749874534 8a^6b^4+2231816747049556581 2a^7b^4)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(316411422061594860a^8b^4+20053784367454838 0a^9b^4+2366386284722460a^{10}b^4)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(647217596189164a^{11}b^4+4990312383420a^{12}b^4+718310791660a^{13}b^4)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(2600776620a^{14}b^4+211915132a^{15}b^4+9469952234040490113 24b^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-173272020448741914247 2ab^5+3176905101637503805348a^2b^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-479471198586317093520a^3b^5+7118592916301886848 92a^4b^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-132443262946906831 92a^5b^5+338713315185197953 00a^6b^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(178509989944347 20a^7b^5+484586470941488916a^8b^5+4108083073246152a^9b^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

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$$+\frac{524288b(2360734480596492a^{10}b^5+15334926887280a^{11}b^5+3859957069332a^{12}b^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(12634884024a^{13}b^5+1676056044a^{14}b^5-1719307906269885708 04b^6)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(5077248600748089124 68ab^6-2370220872204284306 48a^2b^6)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(3221777528433933421 68a^3b^6-2286332609081208287 6a^4b^6)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(2961271041841774662 0a^5b^6-289382296218006992a^6b^6)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(7039697531381143 20a^7b^6+2291343736653972a^8b^6+5284711076616972a^9b^6)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(24584628748680a^{10}b^6+12807631555992a^{11}b^6+35197176924a^{12}b^6)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(8122425444a^{13}b^6+2361526221384640680 4b^7-4457554985170063358 4ab^7)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(7261623651230123021 6a^2b^7-1351791004842640190 4a^3b^7)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(1483422896201781220 4a^4b^7-5417114499085798 08a^5b^7)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(6232728532645128 80a^6b^7-3211397396599392a^7b^7+7438485518649900a^8b^7)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(13647662542800a^9b^7+27105250989960a^{10}b^7+53239427280a^{11}b^7)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(25140840660a^{12}b^7-2505874787291646498b^8+7096841648258109774ab^8)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-3554713715058825462a^2b^8+4118567530121081466a^3b^8)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-362192635506367380a^4b^8+335036903394444108a^5b^8-6430101458336556a^6b^8)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(6647435147415348a^7b^8-16894761676650a^8b^8+37267793684550a^9b^8)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(29538541890a^{10}b^8+51021117810a^{11}b^8+20825105789932321 8b^9)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-394251249479137908ab^9+588835800871070610a^2b^9)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-117765498111209520a^3b^9+106961337355063620a^4b^9-4701727850267448a^5b^9)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(3760722206829588a^6b^9-35833247976240a^7b^9+33539087889450a^8b^9)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-32820602100a^9b^9+68923264410a^{10}b^9-13663776163658478b^{10})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(37227237877945830ab^{10}-18785390190548696a^2b^{10}+19370822163507672a^3b^{10})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-17704210866141 80a^4b^{10}+1325553122001108a^5b^{10}-28033056115064a^6b^{10})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(19709827528248a^7b^{10}-73204212510a^8b^{10}+62359143990a^9b^{10})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(710084079834558b^{11}-1316694562355952ab^{11}+1828505864702504a^2b^{11})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-3564013672346 40a^3b^{11}+281900758731956a^4b^{11}-11743720135056a^5b^{11})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

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$$+\frac{524288b(7469623102760a^6b^{11}-60338017584a^7b^{11}+37711260990a^8b^{11})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-291867181960 12b^{12}+76320137288772ab^{12}-36535526629420a^2b^{12})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(34220151840420a^3b^{12}-2778732507460a^4b^{12}+1781300804556a^5b^{12})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-27375582052a^6b^{12}+15084504396a^7b^{12}+942715036492b^{13})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-1663027017288ab^{13}+2155023393796a^2b^{13}-363586707120a^3b^{13})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(256594423540a^4b^{13}-7282174536a^5b^{13}+3910797436a^6b^{13}-236252161 32b^{14})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(58788536196ab^{14}-24404420040a^2b^{14}+20899430760a^3b^{14}-1127935380a^4b^{14})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(635745396a^5b^{14}+449681892b^{15}-716920464ab^{15}+861332472a^2b^{15})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-96946512a^3b^{15}+61523748a^4b^{15}-6278151b^{16}+14574729ab^{16})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-4194801a^2b^{16}+3262623a^3b^{16}+60591b^{17}-75582ab^{17}+82251a^2b^{17})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{524288b(-361b^{18}+741ab^{18}+b^{19})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}\Bigg\}-$$

$$-\frac{\Gamma(\frac{b+1}{2})}{\Gamma(\frac{a}{2})}\Bigg\{\frac{1048576(8200794532637891559375+33222453094521656744625a)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-246494733946096407817 5a^2+28718225937835914827295a^3)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-3743527666786355832228a^4+3405266444028472415652a^5)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-3073404233196334576 76a^6+1082693274153534359 16a^7)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-6586460453221363806a^8+119039729926852745 4a^9)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-4865371541016472 2a^{10}+5046299073566322a^{11}-136044645566804a^{12})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(8455024465236a^{13}-143249607228a^{14}+5307418428a^{15}-50652537a^{16})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(1047033a^{17}-4199a^{18}+39a^{19}+20125013723397976152375b)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(2678401436788690464915 0ab+8970915492707914633855 5a^2b)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-3318894504681786671472a^3b+2373503933616846650583 6a^4b)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-1592826112836059973560a^5b+1340384188957112471692a^6b)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-7017944512868601166 4a^7b+2369486381391340029 0a^8b)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-8826493513190570 36a^9b+1541579063855902 50a^{10}b-3908213830318096a^{11}b)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(390969013904092a^{12}b-6364613182648a^{13}b+377940383964a^{14}b)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-3532333168a^{15}b+122581407a^{16}b-493506a^{17}b+9139a^{18}b)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

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$$+\frac{1048576(19688993487602867898225b^2+665694161130602262751 65ab^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(16481181023683218686376a^2b^2+5029136226987451157872 8a^3b^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-1065598075457801482740a^4b^2+549933017236730371020 4a^5b^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-2112466849078252190 16a^6b^2+162371581902467831608a^7b^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-5175623316897888426a^8b^2+16442052734785532 14a^9b^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-37967523155613480a^{10}b^2+6287173301234072a^{11}b^2-96486711472788a^{12}b^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(9131066181020a^{13}b^2-82385891640a^{14}b^2+4577615432a^{15}b^2-18177471a^{16}b^2)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(575757a^{17}b^2+1079270003047184030074 5b^3+1819726185841839737640 0ab^3)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(4035765117035231492296 8a^2b^3+3438152189587572233712a^3b^3)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(9808090429803615207 00a^4b^3-1277479220245873721 44a^5b^3)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(5125933234915445206 80a^6b^3-1187318494845439528 0a^7b^3)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(8294628633401516406a^8b^3-1629213870141114 40a^9b^3)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(4818627001114212 0a^{10}b^3-671998070250416a^{11}b^3+104212054616124a^{12}b^3)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-886583500880a^{13}b^3+78284308440a^{14}b^3-300782768a^{15}b^3+15380937a^{16}b^3)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(3824294822931302783964b^4+1190764959319051136850 0ab^4)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(4673222221480836168652a^2b^4+8208505768506397623204a^3b^4)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(3075403918796427345 40a^4b^4+8287453557242565666 96a^5b^4)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-6855294547498745348a^6b^4+223181674704955658 12a^7b^4)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-316411422061594860a^8b^4+200537843674548380a^9b^4)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-2366386284722460a^{10}b^4+647217596189164a^{11}b^4-4990312383420a^{12}b^4)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(718310791660a^{13}b^4-2600776620a^{14}b^4+211915132a^{15}b^4)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(9469952234040490113 24b^5+1732720204487419142472ab^5)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(3176905101637503805348a^2b^5+4794711985863170935 20a^3b^5)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(7118592916301886848 92a^4b^5+1324432629469068319 2a^5b^5)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(3387133151851979530 0a^6b^5-178509989944434720a^7b^5)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(4845864709414889 16a^8b^5-4108083073246152a^9b^5+2360734480596492a^{10}b^5)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

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$$+\frac{1048576(-15334926887280a^{11}b^5+3859957069332a^{12}b^5-12634884024a^{13}b^5)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(1676056044a^{14}b^5+1719307906269885708 04b^6+5077248600748089124 68ab^6)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(2370220872204284306 48a^2b^6+3221777528433933421 68a^3b^6)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(2286332609081208287 6a^4b^6+2961271041841774662 0a^5b^6)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(2893822962180069 92a^6b^6+7039697531381143 20a^7b^6-2291343736653972a^8b^6)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(5284711076616972a^9b^6-24584628748680a^{10}b^6+12807631555992a^{11}b^6)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-35197176924a^{12}b^6+8122425444a^{13}b^6+2361526221384640680 4b^7)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(4457554985170063358 4ab^7+7261623651230123021 6a^2b^7)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(1351791004842640190 4a^3b^7+1483422896201781220 4a^4b^7)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(5417114499085798 08a^5b^7+6232728532645128 80a^6b^7+3211397396599392a^7b^7)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(7438485518649900a^8b^7-13647662542800a^9b^7+27105250989960a^{10}b^7)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(-53239427280a^{11}b^7+25140840660a^{12}b^7+2505874787291646498b^8)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(7096841648258109774ab^8+3554713715058825462a^2b^8)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(335036903394444108a^5b^8+6430101458336556a^6b^8+6647435147415348a^7b^8)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(16894761676650a^8b^8+37267793684550a^9b^8-29538541890a^{10}b^8)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(51021117810a^{11}b^8+2082510578993232218b^9+394251249479137908ab^9)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(588835800871070610a^2b^9+11776549811209520a^3b^9+10696133735506362 0a^4b^9)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(4701727850267448a^5b^9+3760722206829588a^6b^9+35833247976240a^7b^9)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(33539087889450a^8b^9+32820602100a^9b^9+68923264410a^{10}b^9)}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(13663776163658478b^{10}+3722723787794583 0ab^{10}+18785390190548696a^2b^{10})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(19370822163507672a^3b^{10}+1770421086614180a^4b^{10}+1325553122001108a^5b^{10})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(28033056115064a^6b^{10}+1970982752824 8a^7b^{10}+73204212510a^8b^{10})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(62359143990a^9b^{10}+710084079834558b^{11}+1316694562355952ab^{11})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(1828505864702504a^2b^{11}+356401367234640a^3b^{11}+281900758731956a^4b^{11})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(11743720135056a^5b^{11}+7469623102760a^6b^{11}+60338017584a^7b^{11})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(37711260990a^8b^{11}+29186718196012b^{12}+76320137288772ab^{12})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

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$$+\frac{1048576(36535526629420a^2b^{12}+34220151840420a^3b^{12}+2778732507460a^4b^{12})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(1781300804556a^5b^{12}+27375582052a^6b^{12}+150845043 96a^7b^{12})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(942715036492b^{13}+1663027017288ab^{13}+2155023393796a^2b^{13})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(363586707120a^3b^{13}+256594423540a^4b^{13}+7282174536a^5b^{13}+3910797436a^6b^{13})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(236252161 32b^{14}+58788536196ab^{14}+24404420040a^2b^{14}+20899430760a^3b^{14})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(1127935380a^4b^{14}+635745396a^5b^{14}+449681892b^{15}+716920464ab^{15})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(861332472a^2b^{15}+96946512a^3b^{15}+61523748a^4b^{15}+6278151b^{16})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(14574729ab^{16}+4194801a^2b^{16}+3262623a^3b^{16}+60591b^{17}+75582ab^{17})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(82251a^2b^{17}+361b^{18}+741ab^{18}+b^{19})}{\Big[\prod_{\Theta=1}^{19}\{a-b-(2\Theta-1)\}\Big]\Big[\prod_{\Upsilon=1}^{20}\{a-b+(2\Upsilon-1)\}\Big]}+$$

$$+\frac{1048576(8200794532637891559375+2012501372339797615237 5a)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(1968899348760286789822 5a^2+1079270003047184030074 5a^3)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(3824294822931302783964a^4+9469952234040490113 24a^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(1719307906269885708 04a^6+2361526221384640680 4a^7)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(250587478729164649 8a^{8}+208251057899323218a^{9}+13663776163658478a^{10})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(710084079834558a^{11}+29186718196012a^{12}+942715036492a^{13})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(23625216132a^{14}+449681892a^{15}+6278151a^{1}6+60591a^{17}+361a^{18}+a^{19})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(3322245309452165 6744625b+267840143678869046 49150ab)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(6656941611306022627 5165a^{2}b+18197261858418397376400a^{3}b)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(1190764959319051136 8500a^{4}b+17327202044874191424 72a^{5}b)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(5077248600748089124 68a^{6}b+445755498517006335 84a^{7}b)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(7096841648258109774a^{8}b+39425124947913790 8a^{9}b+37227237877945830a^{10}b)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(1316694562355952a^{11}b+76320137288772a^{12}b+1663027017288a^{13}b)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(58788536196a^{14}b+716920464a^{15}b+14574729a^{16}b+75582a^{17}b+741a^{18}b)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-24649473394609640781 75b^{2}+89709154927079146338555ab^{2})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(1648118102368321868 6376a^{2}b^{2}+40357651170352314922968a^{3}b^{2})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(4673222221480836168652a^{4}b^{2}+31769051016375038053 48a^{5}b^{2})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

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$$+\frac{1048576(237022087220428430648a^6b^2+726162365123012302 16a^7b^2)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(3554713715058825462a^8b^2+588835800871070610a^9b^2+18785390190548696a^{10}b^2)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(1828505864702504a^{11}b^2+36535526629420a^{12}b^2+2155023393796a^{13}b^2)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(24404420040a^{14}b^2+861332472a^{15}b^2+4194801a^{16}b^2+82251a^{17}b^2)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(2871822593783591482729 5b^3-331889450468178667147 2ab^3)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(5029136226987451157872 8a^2b^3+343815218958757223371 2a^3b^3)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(8208505768506397623204a^4b^3+479471198586317093520a^5b^3)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(3221777528433933421 68a^6b^3+135179100484264019 04a^7b^3)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(4118567530121081466a^8b^3+117765498111209520a^9b^3)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(19370822163507672a^{10}b^3+356401367234640a^{11}b^3+34220151840420a^{12}b^3)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(363586707120a^{13}b^3+20899430760a^{14}b^3+96946512a^{15}b^3+3262623a^{16}b^3)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-3743527666786355832228b^4+23735039336168466505836ab^4)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-1065598075457801482740a^2b^4+98089090429803615207 00a^3b^4)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(307540391879642734540a^4b^4+7118592916301886848892a^5b^4)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(2286332609081208287 6a^6b^4+1483422896201781220 4a^7b^4)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(362192635506367380a^8b^4+106961337355063620a^9b^4+1770421086614180a^{10}b^4)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(281900758731956a^{11}b^4+2778732507460a^{12}b^4+256594423540a^{13}b^4)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(1127935380a^{14}b^4+61523748a^{15}b^4+34052664440284724156 52b^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-1592826112836059973560ab^5+5499330172367303710204a^2b^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-1277479220245873721 44a^3b^5+8287453557242565665 96a^4b^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(1324432629469068319 2a^5b^5+2961271041841774662 0a^6b^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(541711449908579808a^7b^5+335036903394444108a^8b^5+4701727850267448a^9b^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(1325553122001108a^{10}b^5+11743720135056a^{11}b^5+1781300804556a^{12}b^5)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(7282174536a^{13}b^5+635745396a^{14}b^5-30734042331963345767 6b^6)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(1340384188957112471692ab^6-2112466849078252190 16a^2b^6)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(5125933234915445206 80a^3b^6-6855294547498745348a^4b^6)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

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$$+\frac{1048576(338713315185197953 00a^5b^6+289382296218006992a^6b^6)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(623272853264512880a^7b^6+6430101458336556a^8b^6+3760722206829588a^9b^6)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(28033056115064a^{10}b^6+7469623102760a^{11}b^6+27375582052a^{12}b^6)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(3910797436a^{13}b^6+1082693274153534359 16b^7-7017944512868601166 4ab^7)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(1623715819024678316 08a^2b^7-1187318494845439528 0a^3b^7)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(2231816747049556581 2a^4b^7-1785099899444347 20a^5b^7)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(7039697531381143 20a^6b^7+3211397396599392a^7b^7+6647435147415348a^8b^7)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(358332479762 40a^9b^7+19709827528248a^{10}b^7+60338017584a^{11}b^7)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(150845043 96a^12b^7-6586460453221363806b^8+2369486381391340 0290ab^8)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-5175623316897888426a^2b^8+8294628633401516406a^3b^8)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-3164114220615948 60a^4b^8+4845864709414889 16a^5b^8-2291343736653972a^6b^8)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(7438485518649900a^7b^8+16894761676650a^8b^8+33539087889450a^9b^8)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(73204212510a^{10}b^8+37711260990a^{11}b^8+1190397299268527454b^9)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-882649351319057036ab^9+16442052734785532 14a^2b^9)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-162921387014111440a^3b^9+200537843674548380a^4b^9-4108083073246152a^5b^9)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(5284711076616972a^6b^9-13647662542800a^7b^9+37267793684550a^8b^9)}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(32820602100a^9b^9+62359143990a^{10}b^9-48653715410164722b^{10})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(154157906385590250ab^{10}-37967523155613480a^2b^{10}+48186270011142120a^3b^{10})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-2366386284722460a^4b^{10}+2360734480596492a^5b^{10}-24584628748680a^6b^{10})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(27105250989960a^7b^{10}-29538541890a^8b^{10}+68923264410a^9b^{10})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(50462990735663 22b^{11}-3908213830318096ab^{11}+6287173301234072a^2b^{11})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-671998070250416a^3b^{11}+647217596189164a^4b^{11}-15334926887280a^5b^{11})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(12807631555992a^6b^{11}-53239427280a^7b^{11}+51021117810a^8b^{11})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-136044645566804b^{12}+390969013904092ab^{12}-96486711472788a^2b^{12})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(104212054616124a^3b^{12}-4990312383420a^4b^{12}+3859957069332a^5b^{12})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-35197176924a^6b^{12}+25140840660a^7b^{12}+8455024465236b^{13})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-6364613182648ab^{13}+9131066181020a^2b^{13}-886583500880a^3b^{13})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(718310791660a^4b^{13}-12634884024a^5b^{13}+8122425444a^6b^{13}-143249607228b^{14})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(377940383964ab^{14}-82385891640a^2b^{14}+78284308440a^3b^{14}-2600776620a^4b^{14})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(1676056044a^5b^{14}+5307418428b^{15}-3532333168ab^{15}+4577615432a^2b^{15})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-300782768a^3b^{15}+211915132a^4b^{15}-50652537b^{16}+122581407ab^{16})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-18177471a^2b^{16}+15380937a^3b^{16}+1047033b^{17}-493506ab^{17}+575757a^2b^{17})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}+$$

$$+\frac{1048576(-4199b^{18}+9139ab^{18}+39b^{19})}{\Big[\prod_{\Xi=1}^{20}\{a-b-2\Xi)\}\Big]\Big[\prod_{\Psi=1}^{19}\{a-b+2\Psi)\}\Big]}\Bigg\}\Bigg] \tag{22}$$

III. Derivation of the Main Summation Formula

Proceeding on the same way of Ref[8],we get the main result.

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Notes