



GLOBAL JOURNAL OF SCIENCE FRONTIER RESEARCH
MATHEMATICS AND DECISION SCIENCES

Volume 12 Issue 5 Version 1.0 May 2012

Type : Double Blind Peer Reviewed International Research Journal

Publisher: Global Journals Inc. (USA)

Online ISSN: 2249-4626 & Print ISSN: 0975-5896

Evaluation of a Summation Formula Associated with Gamma Function and Involving Gauss Theorem

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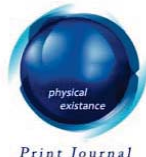
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A.M.S. Subject Classification (2010): 33C60, 33C70



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I. INTRODUCTION

Generalized Gaussian Hypergeometric function

A generalized hypergeometric function ${}_pF_q(a_1, \dots, a_p; b_1, \dots, b_q; z)$ 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

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

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

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

or

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

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

The ${}_pF_q$ series [23, p.156(3)] 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 $p > q+1$.

The ${}_pF_q$ series [23, p.156(4)] absolutely converges for $|z| = 1$ if $R(\zeta) < 0$, conditionally converges for $|z| = 1, z \neq 0$ if $0 \leq R(\zeta) < 1$, diverges for $|z| = 1$, 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 to the hypergeometric differential equation

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

The solution of this equation is

$$y = A_0 \left[1 + \frac{ab}{1!c}z + \frac{a(a+1)b(b+1)}{2!c(c+1)}z^2 + \dots \right] \quad (5)$$

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This is the so-called regular solution, denoted

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

Which converges if c is not a negative integer for all of $|z| < 1$ and on the unit circle $|z| = 1$ if $R(c-a-b) > 0$. Here $(a)_k$ is a Pochhammer symbol and is defined by

$$(a)_k = \frac{\Gamma(a+k)}{\Gamma(a)} = \begin{cases} a(a+1)(a+2)\cdots(a+k-1); & \text{if } k = 1, 2, 3, \dots \\ 1 & \text{if } k = 0 \\ k! & \text{if } a = 1, k = 1, 2, 3, \dots \end{cases} \quad (7)$$

Contiguous Relation is defined by

[Andrews p.363(9.16), E. D. p.51(10)]

$$(a-b) {}_2F_1 \left[\begin{matrix} a, b \\ c \end{matrix}; z \right] = a {}_2F_1 \left[\begin{matrix} a+1, b \\ c \end{matrix}; z \right] - b {}_2F_1 \left[\begin{matrix} a, b+1 \\ c \end{matrix}; z \right] \quad (8)$$

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

$${}_2F_1 \left[\begin{matrix} a, b \\ \frac{a+b+1}{2} \end{matrix}; \frac{1}{2} \right] = \frac{\Gamma(\frac{a+b+1}{2}) \Gamma(\frac{1}{2})}{\Gamma(\frac{a+1}{2}) \Gamma(\frac{b+1}{2})} \quad (9)$$

$$= \frac{2^{(b-1)} \Gamma(\frac{b}{2}) \Gamma(\frac{a+b+1}{2})}{\Gamma(b) \Gamma(\frac{a+1}{2})} \quad (10)$$

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

$${}_2F_1 \left[\begin{matrix} a, b \\ \frac{a+b-1}{2} \end{matrix}; \frac{1}{2} \right] = \sqrt{\pi} \left[\frac{\Gamma(\frac{a+b+1}{2})}{\Gamma(\frac{a+1}{2}) \Gamma(\frac{b+1}{2})} + \frac{2 \Gamma(\frac{a+b-1}{2})}{\Gamma(a) \Gamma(b)} \right] \quad (11)$$

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

$${}_2F_1 \left[\begin{matrix} a, b \\ \frac{a+b-1}{2} \end{matrix} ; \frac{1}{2} \right] = \frac{2^{(b-1)} \Gamma(\frac{a+b-1}{2})}{\Gamma(b)} \left[\frac{\Gamma(\frac{b}{2})}{\Gamma(\frac{a-1}{2})} + \frac{2^{(a-b+1)} \Gamma(\frac{a}{2}) \Gamma(\frac{a+1}{2})}{\{\Gamma(a)\}^2} + \frac{\Gamma(\frac{b+2}{2})}{\Gamma(\frac{a+1}{2})} \right] \quad (12)$$

Recurrence relation is defined by

$$\Gamma(z+1) = z \Gamma(z) \quad (13)$$

II. DERIVATION OF MAIN RESULT

$$\begin{aligned} & {}_2F_1 \left[\begin{matrix} a, b \\ \frac{a+b+36}{2} \end{matrix} ; \frac{1}{2} \right] = \frac{2^b \Gamma(\frac{a+b+36}{2})}{(a-b) \Gamma(b)} \times \\ & \times \left[\frac{\Gamma(\frac{b}{2})}{\Gamma(\frac{a}{2})} \left\{ \frac{131072(1371195958099968000a - 2317820965473484800a^2 + 1687424939411374080a^3)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \right. \right. \\ & + \frac{131072(-713340918791405568a^4 + 198107173820104704a^5 - 38628489336586240a^6)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\ & + \frac{131072(5503512041431040a^7 - 587213457166336a^8 + 47604013453568a^9 - 2951316459520a^{10})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\ & + \frac{131072(139842010880a^{11} - 5022477824a^{12} + 134304352a^{13} - 2589440a^{14} + 34000a^{15} - 272a^{16} + a^{17})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\ & + \frac{131072(1371195958099968000b + 8731883713131970560a^2b - 2360644428997066752a^3b)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\ & + \frac{131072(2267279959510548480a^4b - 332504193149960192a^5b + 113489856414113792a^6b)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\ & + \frac{131072(-9741187137183744a^7b + 1633123923118336a^8b - 84542302806016a^9b + 7814003087616a^{10}b)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\ & + \frac{131072(-239628553216a^{11}b + 12599892448a^{12}b - 209966592a^{13}b + 6046832a^{14}b - 41888a^{15}b)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \end{aligned}$$

$$\begin{aligned}
& + \frac{131072(561a^{16}b + 2317820965473484800b^2 + 8731883713131970560ab^2 + 6586791913742008320a^3b^2)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(-641592925093232640a^4b^2 + 650308733691240448a^5b^2 - 44844741067923456a^6b^2)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(16064617532609536a^7b^2 - 716669564497920a^8b^2 + 124598817697024a^9b^2)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(-3416752171008a^{10}b^2 + 322510879808a^{11}b^2 - 4919566080a^{12}b^2 + 258685328a^{13}b^2)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(-1669536a^{14}b^2 + 46376a^{15}b^2 + 1687424939411374080b^3 + 2360644428997066752ab^3)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(6586791913742008320a^2b^3 + 1475014418219950080a^4b^3 - 66433020866600960a^5b^3)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(66036533182833664a^6b^3 - 2389236717666304a^7b^3 + 844644599515904a^8b^3)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(-20324619617280a^9b^3 + 3472660479552a^{10}b^3 - 48420456448a^{11}b^3 + 4440873008a^{12}b^3)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(-26898080a^{13}b^3 + 1344904a^{14}b^3 + 713340918791405568b^4 + 2267279959510548480ab^4)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(641592925093232640a^2b^4 + 1475014418219950080a^3b^4 + 130395697879248384a^5b^4)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(-3018527499018240a^6b^4 + 2849386432882176a^7b^4 - 55437330212352a^8b^4)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(18754939121952a^9b^4 - 230462749440a^{10}b^4 + 37583709072a^{11}b^4 - 209805024a^{12}b^4)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{131072(18156204a^{13}b^4 + 198107173820104704b^5 + 332504193149960192ab^5)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(650308733691240448a^2b^5 + 66433020866600960a^3b^5 + 130395697879248384a^4b^5)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(5152732631861760a^6b^5 - 63011227023360a^7b^5 + 55557257991840a^8b^5 - 548720832000a^9b^5)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(174501294000a^{10}b^5 - 858293280a^{11}b^5 + 131128140a^{12}b^5 + 38628489336586240b^6)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(113489856414113792ab^6 + 44844741067923456a^2b^6 + 66036533182833664a^3b^6)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(3018527499018240a^4b^6 + 5152732631861760a^5b^6 + 94632071909760a^7b^6 - 579061866240a^8b^6)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(472343733840a^9b^6 - 1855967520a^{10}b^6 + 548354040a^{11}b^6 + 5503512041431040b^7)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(9741187137183744ab^7 + 16064617532609536a^2b^7 + 2389236717666304a^3b^7)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(2849386432882176a^4b^7 + 63011227023360a^5b^7 + 94632071909760a^6b^7 + 771154504560a^8b^7)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(-1855967520a^9b^7 + 1391975640a^{10}b^7 + 587213457166336b^8 + 1633123923118336ab^8)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(716669564497920a^2b^8 + 844644599515904a^3b^8 + 55437330212352a^4b^8 + 55557257991840a^5b^8)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(579061866240a^6b^8 + 771154504560a^7b^8 + 2203961430a^9b^8 + 47604013453568b^9)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{131072(84542302806016ab^9 + 124598817697024a^2b^9 + 20324619617280a^3b^9 + 18754939121952a^4b^9)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(548720832000a^5b^9 + 472343733840a^6b^9 + 1855967520a^7b^9 + 2203961430a^8b^9)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(2951316459520b^{10} + 7814003087616ab^{10} + 3416752171008a^2b^{10} + 3472660479552a^3b^{10})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(230462749440a^4b^{10} + 174501294000a^5b^{10} + 1855967520a^6b^{10} + 1391975640a^7b^{10})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(139842010880b^{11} + 239628553216ab^{11} + 322510879808a^2b^{11} + 48420456448a^3b^{11})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(37583709072a^4b^{11} + 858293280a^5b^{11} + 548354040a^6b^{11} + 5022477824b^{12} + 12599892448ab^{12})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(4919566080a^2b^{12} + 4440873008a^3b^{12} + 209805024a^4b^{12} + 131128140a^5b^{12} + 134304352b^{13})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(209966592ab^{13} + 258685328a^2b^{13} + 26898080a^3b^{13} + 18156204a^4b^{13} + 2589440b^{14})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(6046832ab^{14} + 1669536a^2b^{14} + 1344904a^3b^{14} + 34000b^{15} + 41888ab^{15} + 46376a^2b^{15})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(272b^{16} + 561ab^{16} + b^{17})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144b(1371195958099968000 + 454463600984064000a + 2408583749802393600a^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144b(409718296547426304a^3 + 371450374831276032a^4 + 37209556220248064a^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{262144b(13119256415248384a^6 + 816573706268672a^7 + 143071677346048a^8 + 5580081723392a^9)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144b(536072618752a^{10} + 12670987264a^{11} + 683148128a^{12} + 8854144a^{13} + 254864a^{14} + 1360a^{15})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144b(17a^{16} - 454463600984064000b + 5602141152938557440ab + 530443749074927616a^2b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144b(2236858534136119296a^3b + 181975987703382016a^4b + 150102662129467392a^5b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144b(8324773808992256a^6b + 2766373471713280a^7b + 100364553873408a^8b + 16718432293376a^9b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144b(377613378560a^{10}b + 34335380352a^{11}b + 434701696a^{12}b + 21799712a^{13}b + 116688a^{14}b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144b(2992a^{15}b + 2408583749802393600b^2 - 530443749074927616ab^2 + 3835561229137870848a^2b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144b(154131876008951808a^3b^2 + 546583153785495552a^4b^2 + 23772499280572416a^5b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144b(17769653514624000a^6b^2 + 567373035896832a^7b^2 + 175071078614784a^8b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144b(3666336672768a^9b^2 + 570176595648a^{10}b^2 + 6908438784a^{11}b^2 + 582389808a^{12}b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144b(3060816a^{13}b^2 + 139128a^{14}b^2 - 409718296547426304b^3 + 2236858534136119296ab^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144b(-154131876008951808a^2b^3 + 824706375706312704a^3b^3 + 16573886047465472a^4b^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{262144b(50743149268748288a^5b^3 + 1238566414041088a^6b^3 + 837876594497536a^7b^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(15271496942592a^8b^3 + 4336637568384a^9b^3 + 48502617856a^{10}b^3 + 6955354432a^{11}b^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(34967504a^{12}b^3 + 2689808a^{13}b^3 + 371450374831276032b^4 - 181975987703382016ab^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(546583153785495552a^2b^4 - 16573886047465472a^3b^4 + 71333080666400256a^4b^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(771002818375680a^5b^4 + 2068758086579712a^6b^4 + 28279271725056a^7b^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(17304861730464a^8b^4 + 166875688320a^9b^4 + 43340876304a^{10}b^4 + 200268432a^{11}b^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(26225628a^{12}b^4 - 37209556220248064b^5 + 150102662129467392ab^5 - 23772499280572416a^2b^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(50743149268748288a^3b^5 - 771002818375680a^4b^5 + 2781395797847040a^5b^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(16350893475840a^6b^5 + 38813777544960a^7b^5 + 276657828480a^8b^5 + 153076973280a^9b^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(605206800a^{10}b^5 + 143048880a^{11}b^5 + 13119256415248384b^6 - 8324773808992256ab^6)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(17769653514624000a^2b^6 - 1238566414041088a^3b^6 + 2068758086579712a^4b^6)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(-16350893475840a^5b^6 + 50631230643840a^6b^6 + 151970987520a^7b^6 + 321136968240a^8b^6)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{262144b(927983760a^9b^6 + 463991880a^10b^6 - 816573706268672b^7 + 2766373471713280ab^7)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(-567373035896832a^2b^7 + 837876594497536a^3b^7 - 28279271725056a^4b^7)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(38813777544960a^5b^7 - 151970987520a^6b^7 + 410059647360a^7b^7 + 491285520a^8b^7)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(927983760a^9b^7 + 143071677346048b^8 - 100364553873408ab^8 + 175071078614784a^2b^8)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(-15271496942592a^3b^8 + 17304861730464a^4b^8 - 276657828480a^5b^8 + 321136968240a^6b^8)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(-491285520a^7b^8 + 1166803110a^8b^8 - 5580081723392b^9 + 16718432293376ab^9)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(-3666336672768a^2b^9 + 4336637568384a^3b^9 - 166875688320a^4b^9 + 153076973280a^5b^9)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(-927983760a^6b^9 + 927983760a^7b^9 + 536072618752b^{10} - 377613378560ab^{10})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(570176595648a^2b^{10} - 48502617856a^3b^{10} + 43340876304a^4b^{10} - 605206800a^5b^{10})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(463991880a^6b^{10} - 12670987264b^{11} + 34335380352ab^{11} - 6908438784a^2b^{11} + 6955354432a^3b^{11})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(-200268432a^4b^{11} + 143048880a^5b^{11} + 683148128b^{12} - 434701696ab^{12} + 582389808a^2b^{12})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{262144b(-34967504a^3b^{12} + 26225628a^4b^{12} - 8854144b^{13} + 21799712ab^{13} - 3060816a^2b^{13})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} +
\end{aligned}$$



$$\begin{aligned}
& + \frac{262144b(2689808a^3b^{13} + 254864b^{14} - 116688ab^{14} + 139128a^2b^{14} - 1360b^{15} + 2992ab^{15} + 17b^{16})}{\left[\prod_{\zeta=0}^{17} \{a - b - 2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a - b + 2\xi\} \right]} \Bigg\} - \\
& - \frac{\Gamma(\frac{b+1}{2})}{\Gamma(\frac{a+1}{2})} \Bigg\{ \frac{262144a(1371195958099968000 - 454463600984064000a + 2408583749802393600a^2)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{262144a(-409718296547426304a^3 + 371450374831276032a^4 - 37209556220248064a^5)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{262144a(13119256415248384a^6 - 816573706268672a^7 + 143071677346048a^8 - 5580081723392a^9)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{262144a(536072618752a^{10} - 12670987264a^{11} + 683148128a^{12} - 8854144a^{13} + 254864a^{14} - 1360a^{15})}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{262144a(17a^{16} + 454463600984064000b + 5602141152938557440ab - 530443749074927616a^2b)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{262144a(2236858534136119296a^3b - 181975987703382016a^4b + 150102662129467392a^5b)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{262144a(-8324773808992256a^6b + 2766373471713280a^7b - 100364553873408a^8b)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{262144a(16718432293376a^9b - 377613378560a^{10}b + 34335380352a^{11}b - 434701696a^{12}b)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{262144a(21799712a^{13}b - 116688a^{14}b + 2992a^{15}b + 2408583749802393600b^2 + 530443749074927616ab^2)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{262144a(3835561229137870848a^2b^2 - 154131876008951808a^3b^2 + 546583153785495552a^4b^2)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{262144a(-23772499280572416a^5b^2 + 17769653514624000a^6b^2 - 567373035896832a^7b^2)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{262144a(175071078614784a^8b^2 - 3666336672768a^9b^2 + 570176595648a^{10}b^2 - 6908438784a^{11}b^2)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(582389808a^{12}b^2 - 3060816a^{13}b^2 + 139128a^{14}b^2 + 409718296547426304b^3)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(2236858534136119296ab^3 + 154131876008951808a^2b^3 + 824706375706312704a^3b^3)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(-16573886047465472a^4b^3 + 50743149268748288a^5b^3 - 1238566414041088a^6b^3)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(837876594497536a^7b^3 - 15271496942592a^8b^3 + 4336637568384a^9b^3 - 48502617856a^{10}b^3)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(6955354432a^{11}b^3 - 34967504a^{12}b^3 + 2689808a^{13}b^3 + 371450374831276032b^4)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(181975987703382016ab^4 + 54658315378549552a^2b^4 + 16573886047465472a^3b^4)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(71333080666400256a^4b^4 - 771002818375680a^5b^4 + 2068758086579712a^6b^4)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(-28279271725056a^7b^4 + 17304861730464a^8b^4 - 166875688320a^9b^4 + 43340876304a^{10}b^4)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(-200268432a^{11}b^4 + 26225628a^{12}b^4 + 37209556220248064b^5 + 150102662129467392ab^5)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(23772499280572416a^2b^5 + 50743149268748288a^3b^5 + 771002818375680a^4b^5)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(2781395797847040a^5b^5 - 16350893475840a^6b^5 + 38813777544960a^7b^5 - 276657828480a^8b^5)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(153076973280a^9b^5 - 605206800a^{10}b^5 + 143048880a^{11}b^5 + 13119256415248384b^6)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{262144a(8324773808992256ab^6 + 17769653514624000a^2b^6 + 1238566414041088a^3b^6)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(2068758086579712a^4b^6 + 16350893475840a^5b^6 + 50631230643840a^6b^6 - 151970987520a^7b^6)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(321136968240a^8b^6 - 927983760a^9b^6 + 463991880a^{10}b^6 + 816573706268672b^7)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(2766373471713280ab^7 + 567373035896832a^2b^7 + 837876594497536a^3b^7)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(28279271725056a^4b^7 + 38813777544960a^5b^7 + 151970987520a^6b^7 + 410059647360a^7b^7)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(-491285520a^8b^7 + 927983760a^9b^7 + 143071677346048b^8 + 100364553873408ab^8)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(175071078614784a^2b^8 + 15271496942592a^3b^8 + 17304861730464a^4b^8 + 276657828480a^5b^8)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(321136968240a^6b^8 + 491285520a^7b^8 + 1166803110a^8b^8 + 5580081723392b^9)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(16718432293376ab^9 + 3666336672768a^2b^9 + 4336637568384a^3b^9 + 166875688320a^4b^9)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(153076973280a^5b^9 + 927983760a^6b^9 + 927983760a^7b^9 + 536072618752b^{10})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(377613378560ab^{10} + 570176595648a^2b^{10} + 48502617856a^3b^{10} + 43340876304a^4b^{10})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(605206800a^5b^{10} + 463991880a^6b^{10} + 12670987264b^{11} + 34335380352ab^{11} + 6908438784a^2b^{11})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{262144a(6955354432a^3b^{11} + 200268432a^4b^{11} + 143048880a^5b^{11} + 683148128b^{12} + 434701696ab^{12})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(582389808a^2b^{12} + 34967504a^3b^{12} + 26225628a^4b^{12} + 8854144b^{13} + 21799712ab^{13})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(3060816a^2b^{13} + 2689808a^3b^{13} + 254864b^{14} + 116688ab^{14} + 139128a^2b^{14} + 1360b^{15})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144a(2992ab^{15} + 17b^{16})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{131072(1371195958099968000a + 2317820965473484800a^2 + 1687424939411374080a^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(713340918791405568a^4 + 198107173820104704a^5 + 38628489336586240a^6)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(5503512041431040a^7 + 587213457166336a^8 + 47604013453568a^9 + 2951316459520a^{10})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(139842010880a^{11} + 5022477824a^{12} + 134304352a^{13} + 2589440a^{14} + 34000a^{15} + 272a^{16} + a^{17})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(1371195958099968000b + 8731883713131970560a^2b + 2360644428997066752a^3b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(2267279959510548480a^4b + 332504193149960192a^5b + 113489856414113792a^6b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(9741187137183744a^7b + 1633123923118336a^8b + 84542302806016a^9b + 7814003087616a^{10}b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(239628553216a^{11}b + 12599892448a^{12}b + 209966592a^{13}b + 6046832a^{14}b + 41888a^{15}b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{131072(561a^{16}b - 2317820965473484800b^2 + 8731883713131970560ab^2 + 6586791913742008320a^3b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(641592925093232640a^4b^2 + 650308733691240448a^5b^2 + 44844741067923456a^6b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(16064617532609536a^7b^2 + 716669564497920a^8b^2 + 124598817697024a^9b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(3416752171008a^{10}b^2 + 322510879808a^{11}b^2 + 4919566080a^{12}b^2 + 258685328a^{13}b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(1669536a^{14}b^2 + 46376a^{15}b^2 + 1687424939411374080b^3 - 2360644428997066752ab^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(6586791913742008320a^2b^3 + 1475014418219950080a^4b^3 + 66433020866600960a^5b^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(66036533182833664a^6b^3 + 2389236717666304a^7b^3 + 844644599515904a^8b^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(20324619617280a^9b^3 + 3472660479552a^{10}b^3 + 48420456448a^{11}b^3 + 4440873008a^{12}b^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(26898080a^{13}b^3 + 1344904a^{14}b^3 - 713340918791405568b^4 + 2267279959510548480ab^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(-641592925093232640a^2b^4 + 1475014418219950080a^3b^4 + 130395697879248384a^5b^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(3018527499018240a^6b^4 + 2849386432882176a^7b^4 + 55437330212352a^8b^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(18754939121952a^9b^4 + 230462749440a^{10}b^4 + 37583709072a^{11}b^4 + 209805024a^{12}b^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{131072(18156204a^13b^4 + 198107173820104704b^5 - 332504193149960192ab^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{131072(650308733691240448a^2b^5 - 66433020866600960a^3b^5 + 130395697879248384a^4b^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{131072(5152732631861760a^6b^5 + 63011227023360a^7b^5 + 55557257991840a^8b^5 + 548720832000a^9b^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{131072(174501294000a^{10}b^5 + 858293280a^{11}b^5 + 131128140a^{12}b^5 - 38628489336586240b^6)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{131072(113489856414113792ab^6 - 44844741067923456a^2b^6 + 66036533182833664a^3b^6)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{131072(-3018527499018240a^4b^6 + 5152732631861760a^5b^6 + 94632071909760a^7b^6 + 579061866240a^8b^6)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{131072(472343733840a^9b^6 + 1855967520a^{10}b^6 + 548354040a^{11}b^6 + 5503512041431040b^7)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{131072(-9741187137183744ab^7 + 16064617532609536a^2b^7 - 2389236717666304a^3b^7)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{131072(2849386432882176a^4b^7 - 63011227023360a^5b^7 + 94632071909760a^6b^7 + 771154504560a^8b^7)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{131072(1855967520a^9b^7 + 1391975640a^{10}b^7 - 587213457166336b^8 + 1633123923118336ab^8)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{131072(-716669564497920a^2b^8 + 844644599515904a^3b^8 - 55437330212352a^4b^8 + 55557257991840a^5b^8)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{131072(-579061866240a^6b^8 + 771154504560a^7b^8 + 2203961430a^9b^8 + 47604013453568b^9)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{131072(-84542302806016ab^9 + 124598817697024a^2b^9 - 20324619617280a^3b^9 + 18754939121952a^4b^9)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{131072(-548720832000a^5b^9 + 472343733840a^6b^9 - 1855967520a^7b^9 + 2203961430a^8b^9)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(-2951316459520b^{10} + 7814003087616ab^{10} - 3416752171008a^2b^{10} + 3472660479552a^3b^{10})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(-230462749440a^4b^{10} + 174501294000a^5b^{10} - 1855967520a^6b^{10} + 1391975640a^7b^{10})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(139842010880b^{11} - 239628553216ab^{11} + 322510879808a^2b^{11} - 48420456448a^3b^{11})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(37583709072a^4b^{11} - 858293280a^5b^{11} + 548354040a^6b^{11} - 5022477824b^{12} + 12599892448ab^{12})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(-4919566080a^2b^{12} + 4440873008a^3b^{12} - 209805024a^4b^{12} + 131128140a^5b^{12} + 134304352b^{13})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(-209966592ab^{13} + 258685328a^2b^{13} - 26898080a^3b^{13} + 18156204a^4b^{13} - 2589440b^{14})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(6046832ab^{14} - 1669536a^2b^{14} + 1344904a^3b^{14} + 34000b^{15} - 41888ab^{15} + 46376a^2b^{15})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{131072(-272b^{16} + 561ab^{16} + b^{17})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} \Bigg\} \quad (14)
\end{aligned}$$

III. EVALUATION OF MAIN SUMMATION FORMULA (14)

Substituting $c = \frac{a+b+36}{2}$ and $z = \frac{1}{2}$ in equation (8), we get

$$(a-b) {}_2F_1 \left[\begin{matrix} a, b \\ \frac{a+b+36}{2} \end{matrix} ; \frac{1}{2} \right] = a {}_2F_1 \left[\begin{matrix} a+1, b \\ \frac{a+b+36}{2} \end{matrix} ; \frac{1}{2} \right] - b {}_2F_1 \left[\begin{matrix} a, b+1 \\ \frac{a+b+36}{2} \end{matrix} ; \frac{1}{2} \right]$$

Now involving the derived result from Gauss second summation theorem, we get

$$L.H.S = a \frac{2^b \Gamma(\frac{a+b+36}{2})}{\Gamma(b)} \left[\frac{\Gamma(\frac{b}{2})}{\Gamma(\frac{a+2}{2})} \left\{ \frac{65536(1371195958099968000a - 2317820965473484800a^2)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \right. \right.$$

$$\begin{aligned}
& + \frac{65536(1687424939411374080a^3 - 713340918791405568a^4 + 198107173820104704a^5)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{65536(-38628489336586240a^6 + 5503512041431040a^7 - 587213457166336a^8 + 47604013453568a^9)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{65536(-2951316459520a^{10} + 139842010880a^{11} - 5022477824a^{12} + 134304352a^{13} - 2589440a^{14})}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{65536(34000a^{15} - 272a^{16} + a^{17} + 1371195958099968000b + 8731883713131970560a^2b)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{65536(-2360644428997066752a^3b + 2267279959510548480a^4b - 332504193149960192a^5b)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{65536(113489856414113792a^6b - 9741187137183744a^7b + 1633123923118336a^8b)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{65536(-84542302806016a^9b + 7814003087616a^{10}b - 239628553216a^{11}b + 12599892448a^{12}b)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{65536(-209966592a^{13}b + 6046832a^{14}b - 41888a^{15}b + 561a^{16}b + 2317820965473484800b^2)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{65536(8731883713131970560ab^2 + 6586791913742008320a^3b^2 - 641592925093232640a^4b^2)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{65536(650308733691240448a^5b^2 - 44844741067923456a^6b^2 + 16064617532609536a^7b^2)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{65536(-716669564497920a^8b^2 + 124598817697024a^9b^2 - 3416752171008a^{10}b^2 + 322510879808a^{11}b^2)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{65536(-4919566080a^{12}b^2 + 258685328a^{13}b^2 - 1669536a^{14}b^2 + 46376a^{15}b^2 + 1687424939411374080b^3)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} + \\
& + \frac{65536(2360644428997066752ab^3 + 6586791913742008320a^2b^3 + 1475014418219950080a^4b^3)}{\left[\prod_{\rho=0}^{16} \{a - b - 2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a - b + 2\tau\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{65536(-66433020866600960a^5b^3 + 66036533182833664a^6b^3 - 2389236717666304a^7b^3)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(844644599515904a^8b^3 - 20324619617280a^9b^3 + 3472660479552a^{10}b^3 - 48420456448a^{11}b^3)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(4440873008a^{12}b^3 - 26898080a^{13}b^3 + 1344904a^{14}b^3 + 713340918791405568b^4)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(2267279959510548480ab^4 + 641592925093232640a^2b^4 + 1475014418219950080a^3b^4)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(130395697879248384a^5b^4 - 3018527499018240a^6b^4 + 2849386432882176a^7b^4)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(-55437330212352a^8b^4 + 18754939121952a^9b^4 - 230462749440a^{10}b^4 + 37583709072a^{11}b^4)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(-209805024a^{12}b^4 + 18156204a^{13}b^4 + 198107173820104704b^5 + 332504193149960192ab^5)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(650308733691240448a^2b^5 + 66433020866600960a^3b^5 + 130395697879248384a^4b^5)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(5152732631861760a^6b^5 - 63011227023360a^7b^5 + 55557257991840a^8b^5 - 548720832000a^9b^5)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(174501294000a^{10}b^5 - 858293280a^{11}b^5 + 131128140a^{12}b^5 + 38628489336586240b^6)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(113489856414113792ab^6 + 44844741067923456a^2b^6 + 66036533182833664a^3b^6)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(3018527499018240a^4b^6 + 5152732631861760a^5b^6 + 94632071909760a^7b^6 - 579061866240a^8b^6)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(472343733840a^9b^6 - 1855967520a^{10}b^6 + 548354040a^{11}b^6 + 5503512041431040b^7)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{65536(9741187137183744ab^7 + 16064617532609536a^2b^7 + 2389236717666304a^3b^7)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(2849386432882176a^4b^7 + 63011227023360a^5b^7 + 94632071909760a^6b^7 + 771154504560a^8b^7)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(-1855967520a^9b^7 + 1391975640a^{10}b^7 + 587213457166336b^8 + 1633123923118336ab^8)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(716669564497920a^2b^8 + 844644599515904a^3b^8 + 55437330212352a^4b^8 + 55557257991840a^5b^8)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(579061866240a^6b^8 + 771154504560a^7b^8 + 2203961430a^9b^8 + 47604013453568b^9)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(84542302806016ab^9 + 124598817697024a^2b^9 + 20324619617280a^3b^9 + 18754939121952a^4b^9)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(548720832000a^5b^9 + 472343733840a^6b^9 + 1855967520a^7b^9 + 2203961430a^8b^9)}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(2951316459520b^{10} + 7814003087616ab^{10} + 3416752171008a^2b^{10} + 3472660479552a^3b^{10})}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(230462749440a^4b^{10} + 174501294000a^5b^{10} + 1855967520a^6b^{10} + 1391975640a^7b^{10})}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(139842010880b^{11} + 239628553216ab^{11} + 322510879808a^2b^{11} + 48420456448a^3b^{11})}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(37583709072a^4b^{11} + 858293280a^5b^{11} + 548354040a^6b^{11} + 5022477824b^{12} + 12599892448ab^{12})}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(4919566080a^2b^{12} + 4440873008a^3b^{12} + 209805024a^4b^{12} + 131128140a^5b^{12} + 134304352b^{13})}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} + \\
& + \frac{65536(209966592ab^{13} + 258685328a^2b^{13} + 26898080a^3b^{13} + 18156204a^4b^{13} + 2589440b^{14})}{\left[\prod_{\rho=0}^{16}\{a-b-2\rho\}\right]\left[\prod_{\tau=1}^{17}\{a-b+2\tau\}\right]} +
\end{aligned}$$



$$\begin{aligned}
& + \frac{65536(6046832ab^{14} + 1669536a^2b^{14} + 1344904a^3b^{14} + 34000b^{15} + 41888ab^{15} + 46376a^2b^{15})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& \quad + \frac{65536(272b^{16} + 561ab^{16} + b^{17})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} \Bigg\} - \\
& - \frac{\Gamma(\frac{b+1}{2})}{\Gamma(\frac{a+1}{2})} \Bigg\{ \frac{262144(1371195958099968000 - 454463600984064000a + 2408583749802393600a^2)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} \\
& + \frac{262144(-409718296547426304a^3 + 371450374831276032a^4 - 37209556220248064a^5)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144(13119256415248384a^6 - 816573706268672a^7 + 143071677346048a^8 - 5580081723392a^9)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144(536072618752a^{10} - 12670987264a^{11} + 683148128a^{12} - 8854144a^{13} + 254864a^{14} - 1360a^{15})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144(17a^{16} + 454463600984064000b + 5602141152938557440ab - 530443749074927616a^2b)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144(2236858534136119296a^3b - 181975987703382016a^4b + 150102662129467392a^5b)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144(-8324773808992256a^6b + 2766373471713280a^7b - 100364553873408a^8b + 16718432293376a^9b)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144(-377613378560a^{10}b + 34335380352a^{11}b - 434701696a^{12}b + 21799712a^{13}b - 116688a^{14}b)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144(2992a^{15}b + 2408583749802393600b^2 + 530443749074927616ab^2 + 3835561229137870848a^2b^2)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144(-154131876008951808a^3b^2 + 546583153785495552a^4b^2 - 23772499280572416a^5b^2)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144(17769653514624000a^6b^2 - 567373035896832a^7b^2 + 175071078614784a^8b^2)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{262144(-3666336672768a^9b^2 + 570176595648a^{10}b^2 - 6908438784a^{11}b^2 + 582389808a^{12}b^2)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(-3060816a^{13}b^2 + 139128a^{14}b^2 + 409718296547426304b^3 + 2236858534136119296ab^3)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(154131876008951808a^2b^3 + 824706375706312704a^3b^3 - 16573886047465472a^4b^3)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(50743149268748288a^5b^3 - 1238566414041088a^6b^3 + 837876594497536a^7b^3)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(-15271496942592a^8b^3 + 4336637568384a^9b^3 - 48502617856a^{10}b^3 + 6955354432a^{11}b^3)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(-34967504a^{12}b^3 + 2689808a^{13}b^3 + 371450374831276032b^4 + 181975987703382016ab^4)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(546583153785495552a^2b^4 + 16573886047465472a^3b^4 + 71333080666400256a^4b^4)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(-771002818375680a^5b^4 + 2068758086579712a^6b^4 - 28279271725056a^7b^4)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(17304861730464a^8b^4 - 166875688320a^9b^4 + 43340876304a^{10}b^4 - 200268432a^{11}b^4)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(26225628a^1b^4 + 37209556220248064b^5 + 150102662129467392ab^5 + 23772499280572416a^2b^5)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(50743149268748288a^3b^5 + 771002818375680a^4b^5 + 2781395797847040a^5b^5)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(-16350893475840a^6b^5 + 38813777544960a^7b^5 - 276657828480a^8b^5 + 153076973280a^9b^5)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(-605206800a^{10}b^5 + 143048880a^{11}b^5 + 13119256415248384b^6 + 8324773808992256ab^6)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{262144(17769653514624000a^2b^6 + 1238566414041088a^3b^6 + 2068758086579712a^4b^6)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(16350893475840a^5b^6 + 50631230643840a^6b^6 - 151970987520a^7b^6 + 321136968240a^8b^6)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(-927983760a^9b^6 + 463991880a^{10}b^6 + 816573706268672b^7 + 2766373471713280ab^7)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(567373035896832a^2b^7 + 837876594497536a^3b^7 + 28279271725056a^4b^7 + 38813777544960a^5b^7)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(151970987520a^6b^7 + 410059647360a^7b^7 - 491285520a^8b^7 + 927983760a^9b^7)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(143071677346048b^8 + 100364553873408ab^8 + 175071078614784a^2b^8 + 15271496942592a^3b^8)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(17304861730464a^4b^8 + 276657828480a^5b^8 + 321136968240a^6b^8 + 491285520a^7b^8)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(1166803110a^8b^8 + 5580081723392b^9 + 16718432293376ab^9 + 3666336672768a^2b^9)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(4336637568384a^3b^9 + 166875688320a^4b^9 + 153076973280a^5b^9 + 927983760a^6b^9)}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(927983760a^7b^9 + 536072618752b^{10} + 377613378560ab^{10} + 570176595648a^2b^{10})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(48502617856a^3b^{10} + 43340876304a^4b^{10} + 605206800a^5b^{10} + 463991880a^6b^{10} + 12670987264b^{11})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(34335380352ab^{11} + 6908438784a^2b^{11} + 6955354432a^3b^{11} + 200268432a^4b^{11} + 143048880a^5b^{11})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} + \\
& + \frac{262144(683148128b^{12} + 434701696ab^{12} + 582389808a^2b^{12} + 34967504a^3b^{12} + 26225628a^4b^{12})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\}\right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\}\right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{262144(8854144b^{13} + 21799712ab^{13} + 3060816a^2b^{13} + 2689808a^3b^{13} + 254864b^{14} + 116688ab^{14})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} + \\
& + \frac{262144(139128a^2b^{14} + 1360b^{15} + 2992ab^{15} + 17b^{16})}{\left[\prod_{\rho=0}^{16} \{a-b-2\rho\} \right] \left[\prod_{\tau=1}^{17} \{a-b+2\tau\} \right]} \Bigg\} - \\
& - \frac{2^{b+1} \Gamma(\frac{a+b+36}{2})}{\Gamma(b)} \left[\frac{\Gamma(\frac{b+1}{2})}{\Gamma(\frac{a+1}{2})} \left\{ \frac{65536(1371195958099968000a + 2317820965473484800a^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \right. \right. \\
& + \frac{65536(1687424939411374080a^3 + 713340918791405568a^4 + 198107173820104704a^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{65536(38628489336586240a^6 + 5503512041431040a^7 + 587213457166336a^8 + 47604013453568a^9)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{65536(2951316459520a^{10} + 139842010880a^{11} + 5022477824a^{12} + 134304352a^{13} + 2589440a^{14})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{65536(34000a^{15} + 272a^{16} + a^{17} + 1371195958099968000b + 8731883713131970560a^2b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{65536(2360644428997066752a^3b + 2267279959510548480a^4b + 332504193149960192a^5b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{65536(113489856414113792a^6b + 9741187137183744a^7b + 1633123923118336a^8b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{65536(84542302806016a^9b + 7814003087616a^{10}b + 239628553216a^{11}b + 12599892448a^{12}b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{65536(209966592a^{13}b + 6046832a^{14}b + 41888a^{15}b + 561a^{16}b - 2317820965473484800b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{65536(8731883713131970560ab^2 + 6586791913742008320a^3b^2 + 641592925093232640a^4b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{65536(650308733691240448a^5b^2 + 44844741067923456a^6b^2 + 16064617532609536a^7b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(716669564497920a^8b^2 + 124598817697024a^9b^2 + 3416752171008a^{10}b^2 + 322510879808a^{11}b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(4919566080a^{12}b^2 + 258685328a^{13}b^2 + 1669536a^{14}b^2 + 46376a^{15}b^2 + 1687424939411374080b^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(-2360644428997066752ab^3 + 6586791913742008320a^2b^3 + 1475014418219950080a^4b^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(66433020866600960a^5b^3 + 66036533182833664a^6b^3 + 2389236717666304a^7b^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(844644599515904a^8b^3 + 20324619617280a^9b^3 + 3472660479552a^{10}b^3 + 48420456448a^{11}b^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(4440873008a^{12}b^3 + 26898080a^{13}b^3 + 1344904a^{14}b^3 - 713340918791405568b^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(2267279959510548480ab^4 - 641592925093232640a^2b^4 + 1475014418219950080a^3b^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(130395697879248384a^5b^4 + 3018527499018240a^6b^4 + 2849386432882176a^7b^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(55437330212352a^8b^4 + 18754939121952a^9b^4 + 230462749440a^{10}b^4 + 37583709072a^{11}b^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(209805024a^{12}b^4 + 18156204a^{13}b^4 + 198107173820104704b^5 - 332504193149960192ab^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(650308733691240448a^2b^5 - 66433020866600960a^3b^5 + 130395697879248384a^4b^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{65536(5152732631861760a^6b^5 + 63011227023360a^7b^5 + 55557257991840a^8b^5 + 548720832000a^9b^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(174501294000a^{10}b^5 + 858293280a^{11}b^5 + 131128140a^{12}b^5 - 38628489336586240b^6)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(113489856414113792ab^6 - 44844741067923456a^2b^6 + 66036533182833664a^3b^6)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(-3018527499018240a^4b^6 + 5152732631861760a^5b^6 + 94632071909760a^7b^6 + 579061866240a^8b^6)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(472343733840a^9b^6 + 1855967520a^{10}b^6 + 548354040a^{11}b^6 + 5503512041431040b^7)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(-9741187137183744ab^7 + 16064617532609536a^2b^7 - 2389236717666304a^3b^7)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(2849386432882176a^4b^7 - 63011227023360a^5b^7 + 94632071909760a^6b^7 + 771154504560a^8b^7)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(1855967520a^9b^7 + 1391975640a^{10}b^7 - 587213457166336b^8 + 1633123923118336ab^8)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(-716669564497920a^2b^8 + 844644599515904a^3b^8 - 55437330212352a^4b^8 + 55557257991840a^5b^8)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(-579061866240a^6b^8 + 771154504560a^7b^8 + 2203961430a^9b^8 + 47604013453568b^9)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(-84542302806016ab^9 + 124598817697024a^2b^9 - 20324619617280a^3b^9 + 18754939121952a^4b^9)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(-548720832000a^5b^9 + 472343733840a^6b^9 - 1855967520a^7b^9 + 2203961430a^8b^9)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} + \\
& + \frac{65536(-2951316459520b^{10} + 7814003087616ab^{10} - 3416752171008a^2b^{10} + 3472660479552a^3b^{10})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\}\right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\}\right]} +
\end{aligned}$$



$$\begin{aligned}
& + \frac{65536(-230462749440a^4b^{10} + 174501294000a^5b^{10} - 1855967520a^6b^{10} + 1391975640a^7b^{10})}{\left[\prod_{\zeta=0}^{17}\{a-b-2\zeta\}\right]\left[\prod_{\xi=1}^{16}\{a-b+2\xi\}\right]} + \\
& + \frac{65536(139842010880b^{11} - 239628553216ab^{11} + 322510879808a^2b^{11} - 48420456448a^3b^{11})}{\left[\prod_{\zeta=0}^{17}\{a-b-2\zeta\}\right]\left[\prod_{\xi=1}^{16}\{a-b+2\xi\}\right]} + \\
& + \frac{65536(37583709072a^4b^{11} - 858293280a^5b^{11} + 548354040a^6b^{11} - 5022477824b^{12} + 12599892448ab^{12})}{\left[\prod_{\zeta=0}^{17}\{a-b-2\zeta\}\right]\left[\prod_{\xi=1}^{16}\{a-b+2\xi\}\right]} + \\
& + \frac{65536(-4919566080a^2b^{12} + 4440873008a^3b^{12} - 209805024a^4b^{12} + 131128140a^5b^{12} + 134304352b^{13})}{\left[\prod_{\zeta=0}^{17}\{a-b-2\zeta\}\right]\left[\prod_{\xi=1}^{16}\{a-b+2\xi\}\right]} + \\
& + \frac{65536(-209966592ab^{13} + 258685328a^2b^{13} - 26898080a^3b^{13} + 18156204a^4b^{13} - 2589440b^{14})}{\left[\prod_{\zeta=0}^{17}\{a-b-2\zeta\}\right]\left[\prod_{\xi=1}^{16}\{a-b+2\xi\}\right]} + \\
& + \frac{65536(6046832ab^{14} - 1669536a^2b^{14} + 1344904a^3b^{14} + 34000b^{15} - 41888ab^{15} + 46376a^2b^{15})}{\left[\prod_{\zeta=0}^{17}\{a-b-2\zeta\}\right]\left[\prod_{\xi=1}^{16}\{a-b+2\xi\}\right]} + \\
& + \frac{65536(-272b^{16} + 561ab^{16} + b^{17})}{\left[\prod_{\zeta=0}^{17}\{a-b-2\zeta\}\right]\left[\prod_{\xi=1}^{16}\{a-b+2\xi\}\right]} \Bigg\} - \\
& - \frac{\Gamma(\frac{b+2}{2})}{\Gamma(\frac{a}{2})} \Bigg\{ \frac{262144(1371195958099968000 + 454463600984064000a + 2408583749802393600a^2)}{\left[\prod_{\zeta=0}^{17}\{a-b-2\zeta\}\right]\left[\prod_{\xi=1}^{16}\{a-b+2\xi\}\right]} \\
& + \frac{262144(+409718296547426304a^3 + 371450374831276032a^4 + 37209556220248064a^5)}{\left[\prod_{\zeta=0}^{17}\{a-b-2\zeta\}\right]\left[\prod_{\xi=1}^{16}\{a-b+2\xi\}\right]} + \\
& + \frac{262144(13119256415248384a^6 + 816573706268672a^7 + 143071677346048a^8 + 5580081723392a^9)}{\left[\prod_{\zeta=0}^{17}\{a-b-2\zeta\}\right]\left[\prod_{\xi=1}^{16}\{a-b+2\xi\}\right]} + \\
& + \frac{262144(536072618752a^{10} + 12670987264a^{11} + 683148128a^{12} + 8854144a^{13} + 254864a^{14} + 1360a^{15})}{\left[\prod_{\zeta=0}^{17}\{a-b-2\zeta\}\right]\left[\prod_{\xi=1}^{16}\{a-b+2\xi\}\right]} + \\
& + \frac{262144(17a^{16} - 454463600984064000b + 5602141152938557440ab + 530443749074927616a^2b)}{\left[\prod_{\zeta=0}^{17}\{a-b-2\zeta\}\right]\left[\prod_{\xi=1}^{16}\{a-b+2\xi\}\right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{262144(2236858534136119296a^3b + 181975987703382016a^4b + 150102662129467392a^5b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(8324773808992256a^6b + 2766373471713280a^7b + 100364553873408a^8b + 16718432293376a^9b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(377613378560a^{10}b + 34335380352a^{11}b + 434701696a^{12}b + 21799712a^{13}b + 116688a^{14}b)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(2992a^{15}b + 2408583749802393600b^2 - 530443749074927616ab^2 + 3835561229137870848a^2b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(154131876008951808a^3b^2 + 546583153785495552a^4b^2 + 23772499280572416a^5b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(17769653514624000a^6b^2 + 567373035896832a^7b^2 + 175071078614784a^8b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(3666336672768a^9b^2 + 570176595648a^{10}b^2 + 6908438784a^{11}b^2 + 582389808a^{12}b^2)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(3060816a^{13}b^2 + 139128a^{14}b^2 - 409718296547426304b^3 + 2236858534136119296ab^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(-154131876008951808a^2b^3 + 824706375706312704a^3b^3 + 16573886047465472a^4b^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(50743149268748288a^5b^3 + 1238566414041088a^6b^3 + 837876594497536a^7b^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(15271496942592a^8b^3 + 4336637568384a^9b^3 + 48502617856a^{10}b^3 + 6955354432a^{11}b^3)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(34967504a^{12}b^3 + 2689808a^{13}b^3 + 371450374831276032b^4 - 181975987703382016ab^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(546583153785495552a^2b^4 - 16573886047465472a^3b^4 + 7133308066400256a^4b^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{262144(771002818375680a^5b^4 + 2068758086579712a^6b^4 + 28279271725056a^7b^4 + 17304861730464a^8b^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(166875688320a^9b^4 + 43340876304a^{10}b^4 + 200268432a^{11}b^4 + 26225628a^{12}b^4)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(-37209556220248064b^5 + 150102662129467392ab^5 - 23772499280572416a^2b^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(50743149268748288a^3b^5 - 771002818375680a^4b^5 + 2781395797847040a^5b^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(16350893475840a^6b^5 + 38813777544960a^7b^5 + 276657828480a^8b^5 + 153076973280a^9b^5)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(605206800a^{10}b^5 + 143048880a^{11}b^5 + 13119256415248384b^6 - 8324773808992256ab^6)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(17769653514624000a^2b^6 - 1238566414041088a^3b^6 + 2068758086579712a^4b^6)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(-16350893475840a^5b^6 + 50631230643840a^6b^6 + 151970987520a^7b^6 + 321136968240a^8b^6)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(927983760a^9b^6 + 463991880a^{10}b^6 - 816573706268672b^7 + 2766373471713280ab^7)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(-567373035896832a^2b^7 + 837876594497536a^3b^7 - 28279271725056a^4b^7)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(38813777544960a^5b^7 - 151970987520a^6b^7 + 410059647360a^7b^7 + 491285520a^8b^7)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(927983760a^9b^7 + 143071677346048b^8 - 100364553873408ab^8 + 175071078614784a^2b^8)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{262144(-15271496942592a^3b^8 + 17304861730464a^4b^8 - 276657828480a^5b^8 + 321136968240a^6b^8)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(-491285520a^7b^8 + 1166803110a^8b^8 - 5580081723392b^9 + 16718432293376ab^9)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(-3666336672768a^2b^9 + 4336637568384a^3b^9 - 166875688320a^4b^9 + 153076973280a^5b^9)}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(-927983760a^6b^9 + 927983760a^7b^9 + 536072618752b^{10} - 377613378560ab^{10})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(570176595648a^2b^{10} - 48502617856a^3b^{10} + 43340876304a^4b^{10} - 605206800a^5b^{10})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(463991880a^6b^{10} - 12670987264b^{11} + 34335380352ab^{11} - 6908438784a^2b^{11} + 6955354432a^3b^{11})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(-200268432a^4b^{11} + 143048880a^5b^{11} + 683148128b^{12} - 434701696ab^{12} + 582389808a^2b^{12})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(-34967504a^3b^{12} + 26225628a^4b^{12} - 8854144b^{13} + 21799712ab^{13} - 3060816a^2b^{13})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} + \\
& + \frac{262144(2689808a^3b^{13} + 254864b^{14} - 116688ab^{14} + 139128a^2b^{14} - 1360b^{15} + 2992ab^{15} + 17b^{16})}{\left[\prod_{\zeta=0}^{17} \{a-b-2\zeta\} \right] \left[\prod_{\xi=1}^{16} \{a-b+2\xi\} \right]} \Bigg\}
\end{aligned}$$

On simplification the result (14) is derived.

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