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#####
#####
### File "b3_diS_to_S_in_re_basis";
#####
### restart;

deb:=X-> [seq(op(k,X),k=1..nops(X)-1)]; ##
summa:=X-> add(op(k,X),k=1..nops(X)); ##

heer:=proc(X): proc(p,q): if p+q<>add(op(k,X),k=1..nops(X)) then 0
elif nops(X)=1 and p<op(1,X) then p*a[q]
elif nops(X)=2 and op(1,X)<= q and q<op(2,X) then +a[q]
elif nops(X)=2 and op(2,X)<= q and q<op(1,X) then -a[q]
else 0 fi end: end:

### rep:=rep': rep[1]=1: a:=a': [seq(a[r]=allr, r=1..14)]; assign(%);

Rep:=proc(X):
if nops(X)=1 and op(X)=1 then +a[1]
elif nops(X)=1 and op(X)>1 then
+1/summa(X)*a[op(-1,X)]
+1/summa(X)*add(rep[p]*heer(X)(p,op(X)-p),p=1..op(X)-1)
elif nops(X)>1 and {op(X)} = {1} then 1/(nops(X))*a[1]^(nops(X))
elif nops(X)>1 and {op(X)} <> {1} then
+1/summa(X)*rep[op(deb(X))]*a[op(-1,X)]
+1/summa(X)*add(add( rep[seq(op(k,X),k=1..i-1)],p,seq(op(k,X),k=i+1..nops(X)))*heer([op(i,X)])(p,op(i,X)-p),
p=1..op(i,X)-1),i=1..nops(X))
+1/summa(X)*add(add( rep[seq(op(k,X),k=1..i-1)],p,seq(op(k,X),k=i+2..nops(X)))*heer([op(i,X),op(i+1,X)])(p,op(i,X)+op(i+1,X)-p),
p=1..op(i,X)+op(i+1,X)-1),i=1..nops(X)-1)
fi end:
#####

serep1:= [rep[1] = a1] : ##

serep2:= [
rep[2] = 1/2*a2+1/2*a1^2,
rep[1,1] = 1/2*a1^2
] : ##

serep3:= [
rep[3] = 1/3*a3+2/3*a1*a2+1/3*a1^3,
rep[1,2] = 1/2*a1*a2+1/3*a1^3,
rep[2,1] = 1/6*a1^3,
rep[1,1,1] = 1/6*a1^3
] : ##

serep4:= [
rep[4] = 1/4*a4+1/2*a1*a3+1/4*a2^2+3/4*a2*a1^2+1/4*a1^4,
rep[1,3] = 1/3*a1*a3+2/3*a2*a1^2+1/4*a1^4+1/8*a2^2,
rep[2,2] = 1/8*a2^2+1/4*a2*a1^2+1/8*a1^4,
rep[3,1] = 1/12*a1^4-1/8*a2^2,
rep[1,1,2] = 1/4*a2*a1^2+1/8*a1^4,
rep[1,2,1] = 1/12*a1^4,
rep[2,1,1] = 1/24*a1^4,
rep[1,1,1,1] = 1/24*a1^4
] : ##

serep5:= [
rep[5] = 1/5*a5+2/5*a1*a4+2/5*a3*a2+3/5*a3*a1^2+3/5*a1*a2^2+4/5*a2*a1^3+1/5*a1^5,
rep[1,4] = 1/4*a1*a4+1/2*a3*a1^2+11/24*a1*a2^2+3/4*a2*a1^3+1/5*a1^5+1/6*a3*a2,
rep[2,3] = 1/6*a3*a2+1/6*a3*a1^2+1/3*a2*a1^3+1/10*a1^5+5/24*a1*a2^2,
rep[3,2] = 1/8*a1*a2^2+1/6*a2*a1^3+1/15*a1^5,
rep[4,1] = 1/20*a1^5-5/24*a1*a2^2-1/6*a3*a2,
rep[1,1,3] = 1/6*a3*a1^2+1/3*a2*a1^3+1/10*a1^5+1/8*a1*a2^2,
rep[1,2,2] = 1/8*a1*a2^2+1/6*a2*a1^3+1/15*a1^5,
rep[1,3,1] = 1/20*a1^5-1/8*a1*a2^2,
rep[2,1,2] = 1/12*a2*a1^3+1/30*a1^5,
rep[2,2,1] = 1/40*a1^5,
rep[3,1,1] = 1/60*a1^5,
rep[1,1,1,2] = 1/12*a2*a1^3+1/30*a1^5,
rep[1,1,2,1] = 1/40*a1^5,
rep[1,2,1,1] = 1/60*a1^5,
rep[2,1,1,1] = 1/120*a1^5,
rep[1,1,1,1,1] = 1/120*a1^5
] : ##

serep6:= [
rep[6] = 1/6*a6+1/3*a1*a5+1/3*a4*a2+1/2*a4*a1^2+1/6*a3^2+a3*a1*a2+2/3*a3*a1^3+1/6*a2^3+a2^2*a1^2+5/6*a2*a1^4+1/6*a1^6,

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360*a3^1*a2^2-7/80*a4^2*a1^2-1/30*a5^1*a2+1/48*a2^4+1/48*a1^8-1/15*a5^3-1/32*a4^2-19/120*a3^2*a1^2-7/90*a3^2*a2+1/12*a2^5+1/480*a2^2*a1^4+44/720*a2^3*a1^2, rep[7,1] = -7/40*a4^1*a3-59/120*a3^2*a1^3-487/720*a3^1*a2^2-27/80*a4^2*a1^2-1/5*a5^1+1/128*a2^4+1/56*a1^8-1/12*a6^2-1/15*a5^3-1/32*a4^2-19/96*a4^2*a2-19/120*a3^2*a1^2-17/90*a3^2*a2-53/160*a2^2*a1^4+1/9/1440*a2^3*a1^2, rep[1,6] = 1/12*a4^1*a3+41/45*a3^2*a1^3+239/720*a3^1*a2^2+49/120*a4^2*a1^2+1/10*a5^1*a2+3/128*a2^4+1/16*a1^8+1/12*a6^2+1/6*a5^3+1/32*a4^2+2/736*a3^2*a1^2+1/36*a3^2*a2+1/4*a4^1*a1+1/3*a3^1*a1+5/12*a2^1*a1+6+289/360*a2^2*a1^4+607/1440*a2^3*a1^2, rep[1,5] = 1/12*a4^1*a3+49/90*a3^2*a1^3+209/720*a3^1*a2^2+29/120*a4^2*a1^2+1/10*a5^1*a2+1/48*a2^4+1/24*a1^8+1/15*a5^3+1/32*a4^2+1/9*a3^2*a1^2+1/36*a3^2*a2+2/15*a4^1*a1+1/5*a3^1*a1+5/15*a2^1*a1+6+181/360*a2^2*a1^4+427/1440*a2^3*a1^2, rep[1,4] = 1/12*a4^1*a3+13/36*a3^2*a1^3+19/144*a3^1*a2^2+1/40*a1^8+1/8*a3^2*a1^2+1/36*a3^2*a2+1/15*a4^1*a1+2/15*a2^1*a1+6+2/9*a2^2*a1^4+1/3+144*a2^3*a1^2, rep[1,5,2] = -1/12*a4^1*a3-1/9*a3^2*a1^3-1/36*a3^1*a2^2-1/24*a4^2*a1^2+5/384*a2^4+1/48*a1^8-1/9*a3^2*a1^2-1/36*a3^2*a2+1/12*a2^5+7/72*a2^2*a1^4+11/144*a2^3*a1^2, rep[1,6,1] = -1/12*a4^1*a3-37/90*a3^2*a1^3-19/45*a3^1*a2^2-29/120*a4^2*a1^2-1/10*a5^1*a2-3/64*a4^2+1/56*a1^8-1/16*a4^2*a2-1/9*a3^2*a1^2-1/8*a3^2*a2-109/360*a2^2*a1^4-143/360*a2^3*a1^2, rep[2,1,5] = 79/360*a3^2*a1^3+1/3+144*a3^1*a2^2+1/64*a2^4+1/64*a1^8+1/32*a4^2+1/36*a3^2*a1^2+1/36*a3^2*a2+1/32*a4^1*a1+1/16*a3^1*a1+5/32*a2^1*a1+6+47/288*a2^2*a1^4+29/288*a2^3*a1^2, rep[2,3,3] = 1/9*a3^2*a1^3+5/72*a3^1*a2^2+1/384*a2^4+1/80*a1^8+1/36*a3^2*a1^2+1/36*a3^2*a2+1/30*a3^1*a5+1/15*a2^1*a1+6+1/9*a2^2*a1^4+7/144*a2^3*a1^2, rep[2,4,2] = -1/36*a3^2*a1^3-1/36*a3^1*a2^2+1/96*a1^8-1/36*a3^2*a2+1/24*a2^4+1/64*a1^8+1/8*a3^2*a1^2+1/64*a3^2*a2+1/36*a3^2*a1^2+1/32*a4^1*a1+1/16*a3^1*a1+5/32*a2^1*a1+6+47/288*a2^2*a1^4+29/288*a2^3*a1^2, rep[2,5,1] = -1/172*a3^2*a1^3-1/72*a3^1*a2^2+1/16*a4^2+1/2-5/128*a2^4+1/112*a1^8-1/16*a4^2*a2-1/36*a3^2*a1^2-1/8*a3^2*a2-19/144*a2^2*a1^4+49/288*a2^3*a1^2, rep[3,1,4] = 1/18*a3^2*a1^3+1/48*a3^1*a2^2+7/384*a2^4+1/96*a1^8-1/32*a4^2+1/48*a4^1*a1+1/24*a3^1*a1+1/16*a2^1*a1+6+1/144*a2^2*a1^4+1/42*a2^3*a1^2, rep[3,2,3] = 1/18*a3^2*a1^3+1/24*a3^1*a2^2+1/192*a2^4+1/120*a1^8+1/45*a3^1*a1+5+2/45*a2^1*a1+6+5/72*a2^2*a1^4+1/24*a2^3*a1^2, rep[3,3,2] = 1/48*a2^3*a1+1/24*a2^2*a1+1/36*a2^1*a1+6+1/384*a2^4+1/44*a1^8, rep[3,4,1] = -1/18*a3^2*a1^3-1/9*a3^1*a2^2+1/168*a1^8-1/36*a3^2*a2-5/72*a2^2*a1+13/144*a2^3*a1^2, rep[4,1,3] = -7/72*a3^1*a2^2+5/384*a2^4+1/160*a1^8-1/8*a3^2*a2+1/60*a3^1*a5+1/30*a2^1*a1+4-1/72*a2^3*a1^2, rep[4,2,2] = 1/192*a2^4+1/48*a2^3*a1^2+1/32*a2^2*a1+4-1/48*a2^1*a1+6+1/192*a1^8, rep[4,3,1] = 1/36*a3^1*a2^2-5/144*a2^3*a1^2-5/384*a2^4+1/224*a1^8-1/32*a2^2*a1+4+1/36*a3^2*a2, rep[5,1,2] = -1/16*a3^1*a2^2-13/384*a2^4+1/240*a1^8-1/32*a4^2+1/60*a2^1*a1+6-7/96*a2^3*a1^2, rep[5,2,1] = 1/48*a2^4+1/280*a1^8+1/7/288*a2^3*a1^2+13/144*a3^1*a2^2+1/32*a4^2+1/36*a3^2*a2, rep[6,1,1] = 3/128*a2^4+1/336*a1^8+1/728*a2^3*a1^2+13/144*a3^1*a2^2+1/36*a3^2*a2, rep[1,1,5] = 79/360*a3^2*a1^3+1/3+144*a3^1*a2^2+1/64*a2^4+1/64*a1^8+1/32*a4^2+1/36*a3^2*a1^2+1/36*a3^2*a2+1/32*a4^1*a1+1/16*a3^1*a1+5/32*a2^1*a1+6+47/288*a2^2*a1^4+29/288*a2^3*a1^2, rep[1,1,3,3] = 1/9*a3^2*a1^3+1/24*a3^1*a2^2+1/384*a2^4+1/80*a1^8+1/16*a3^2*a1^2+1/32*a2^1*a1+6+47/288*a2^2*a1^4+29/288*a2^3*a1^2, rep[1,1,3,3] = 1/9*a3^2*a1^3+1/24*a3^1*a2^2+1/384*a2^4+1/80*a1^8+1/16*a3^2*a1^2+1/32*a2^1*a1+6+47/288*a2^2*a1^4+29/288*a2^3*a1^2, rep[1,1,4,2] = -1/36*a3^2*a1^3+1/384*a2^4+1/96*a1^8-1/36*a3^2*a2+1/24*a2^4+1/64*a1^8+1/8*a3^2*a1^2+1/64*a3^2*a2+1/36*a3^2*a1^2+1/32*a4^1*a1+1/16*a3^1*a1+5/32*a2^1*a1+6+47/288*a2^2*a1^4+29/288*a2^3*a1^2, rep[1,1,5,1] = -1/172*a3^2*a1^3-1/72*a3^1*a2^2+1/16*a4^2+1/2-5/128*a2^4+1/112*a1^8-1/16*a4^2*a2-1/36*a3^2*a1^2-1/8*a3^2*a2-19/144*a2^2*a1^4+49/288*a2^3*a1^2, rep[1,2,3,3] = 1/18*a3^2*a1^3+1/24*a3^1*a2^2+1/192*a2^4+1/120*a1^8+1/45*a3^1*a1+5+2/45*a2^1*a1+6+5/72*a2^2*a1^4+1/24*a2^3*a1^2, rep[1,2,3,2] = 1/48*a2^3*a1+1/24*a2^2*a1+1/36*a2^1*a1+6+1/384*a2^4+1/44*a1^8, rep[1,3,2,2] = -1/48*a2^3*a1+1/24*a2^2*a1+1/36*a2^1*a1+6+1/384*a2^4+1/44*a1^8, rep[1,4,2,1] = -1/24*a3^1*a2^2+5/384*a2^4+1/240*a1^8+1/60*a2^1*a1+6+1/60*a2^2*a1^4+1/16*a2^3*a1^2, rep[1,4,2,1] = 1/280*a1^8+1/24*a2^3*a1^2+1/28*a2^4+1/24*a3^1*a2^2, rep[1,5,1,1] = 1/336*a1^8+1/24*a2^3*a1^2+1/28*a2^4+1/24*a3^1*a2^2, rep[1,1,1,4] = 1/96*a3^2*a1^3+1/96*a3^1*a2^2+1/96*a1^8-1/96*a3^2*a2+1/24*a2^4+1/64*a1^8+1/8*a3^2*a1^2+1/64*a3^2*a2+1/36*a3^2*a1^2+1/32*a4^1*a1+1/16*a3^1*a1+5/32*a2^1*a1+6+47/288*a2^2*a1^4+29/288*a2^3*a1^2, rep[1,1,1,4] = 1/96*a3^2*a1^3+1/96*a3^1*a2^2+1/96*a1^8-1/96*a3^2*a2+1/24*a2^4+1/64*a1^8+1/8*a3^2*a1^2+1/64*a3^2*a2+1/36*a3^2*a1^2+1/32*a4^1*a1+1/16*a3^1*a1+5/32*a2^1*a1+6+47/288*a2^2*a1^4+29/288*a2^3*a1^2, rep[2,2,3] = 1/120*a3^1*a5+1/60*a2^1*a1+6+1/320*a1^8+1/64*a2^2*a1^4+1/96*a2^3*a1^2+1/48*a2^4+1/384*a2^4, rep[2,2,2,2] = 1/384*a2^4+1/96*a2^3*a1^2+1/48*a2^2*a1+6+1/288*a1^8+1/96*a2^3*a1^2+1/384*a2^4, rep[2,1,4,1] = 1/336*a1^8+5/144*a2^3*a1^2+1/384*a2^4, rep[2,1,3,1] = 1/120*a3^1*a5+1/60*a2^1*a1+6+1/320*a1^8+1/64*a2^2*a1^4+1/96*a2^3*a1^2+1/48*a2^4+1/384*a2^4, rep[2,2,3,1] = 1/120*a3^1*a5+1/60*a2^1*a1+6+1/320*a1^8+1/64*a2^2*a1^4+1/96*a2^3*a1^2+1/48*a2^4+1/384*a2^4, rep[2,2,2,2] = 1/384*a2^4+1/96*a2^3*a1^2+1/48*a2^2*a1+6+1/288*a1^8+1/96*a2^3*a1^2+1/384*a2^4, rep[2,3,1,2] = 1/120*a2^1*a1+6+1/48*a2^3*a1^2+1/24*a2^2*a1+1/36*a2^1*a1+6+1/384*a2^4+1/480*a1^8, rep[2,3,2,1] = 1/560*a1^8+1/96*a2^3*a1^2+1/48*a2^2*a1+1/28*a2^4, rep[2,4,1,1] = 1/672*a1^8+1/96*a2^3*a1^2+1/28*a2^4, rep[3,1,1,3] = 1/180*a3^1*a5+1/96*a2^2*a1^4+1/90*a2^1*a1+6+1/480*a1^8-1/28*a2^4, rep[3,1,2,2] = 1/96*a2^2*a1^4+1/28*a2^4+1/144*a2^3*a1^2+1/576*a1^8, rep[3,1,3,1] = 1/672*a1^8-1/96*a2^2*a1^4+1/45/384*a2^4, rep[3,2,1,2] = 1/180*a2^1*a1+6+1/28*a2^4+1/720*a1^8, rep[3,2,2,1] = 1/840*a1^8-1/384*a2^4, rep[3,3,1,1] = 1/1008*a1^8-1/384*a2^4, rep[4,1,1,2] = 1/240*a2^1*a1+6+1/28*a2^4+1/960*a1^8, rep[4,1,2,1] = 1/120*a1^8-1/384*a2^4, rep[4,2,1,1] = 1/1344*a1^8-1/384*a2^4, rep[5,1,1,1] = 1/1680*a1^8-1/384*a2^4, rep[1,1,1,4] = 1/96*a4^1*a1+1/48*a3^1*a1+5/1288*a2^2*a1^4+1/32*a2^1*a1+6+1/92*a1^8+1/36*a3^2*a1^3+1/96*a2^3*a1^2, rep[1,1,1,3,3] = 1/36*a3^2*a1^3+1/90*a3^1*a2^2+1/54*a2^1*a1+6+1/45*a3^2*a1^3+1/240*a1^8+5/144*a2^2*a1^4+1/96*a2^3*a1^2, rep[1,1,1,3,2] = 1/48*a2^2*a1^4+1/72*a2^1*a1+6+1/288*a1^8+1/96*a2^3*a1^2+1/36*a1^8-5/144*a2^2*a1^4+1/48*a2^3*a1^2-1/36*a3^2*a1^3, rep[1,1,2,1,3] = 1/120*a3^1*a5+1/60*a2^1*a1+6+1/320*a1^8+1/64*a2^2*a1^4+1/96*a2^3*a1^2, rep[1,1,2,2,2] = 1/96*a2^3*a1^2+1/64*a2^2*a1^4+1/96*a2^1*a1+6+1/384*a1^8, rep[1,1,2,3,1] = 1/448*a1^8-1/64*a2^2*a1^4+1/48*a2^3*a1^2, rep[1,1,3,1,2] = 1/120*a2^1*a1+6+1/48*a2^3*a1^2+1/480*a1^8, rep[1,1,3,2,1] = 1/560*a1^8+1/96*a2^3*a1^2+1/48*a2^2*a1+6, rep[1,1,4,1,1] = 1/672*a1^8+1/96*a2^3*a1^2, rep[1,2,1,1,3] = 1/180*a3^1*a5+1/90*a2^1*a1+6+1/480*a1^8-1/96*a2^2*a1^4, rep[1,2,1,2,2] = 1/96*a2^2*a1^4+1/44*a2^1*a1+6+1/576*a1^8, rep[1,2,1,3,1] = 1/672*a1^8-1/96*a2^2*a1^4, rep[1,2,2,1,2] = 1/180*a2^1*a1+6+1/720*a1^8, rep[1,2,2,1,1] = 1/840*a1^8, rep[1,2,3,1,1] = 1/1008*a1^8, rep[1,3,1,1,2] = 1/240*a2^1*a1+6+1/960*a1^8, rep[1,3,1,2,1] = 1/1120*a1^8, rep[1,3,2,1,1] = 1/1344*a1^8, rep[1,4,1,1,1] = 1/1680*a1^8, rep[2,1,1,1,3] = 360*a3^1*a5+1/180*a2^1*a1+6+1/960*a1^8+1/960*a1^8+1/192*a2^2*a1^4, rep[2,1,1,2,2] = 1/192*a2^2*a1^4+1/288*a2^1*a1+6, rep[2,1,1,3,1] = 1/1344*a1^8, rep[2,1,2,1,1] = 1/360*a2^1*a1+6+1/1440*a1^8, rep[2,2,1,1,2] = 1/1680*a1^8, rep[2,2,1,3,1] = 1/2016*a1^8, rep[2,2,1,2,2] = 1/480*a2^1*a1+6+1/1920*a1^8, rep[2,2,2,1,2] = 1/2240*a1^8, rep[2,2,2,1,1] = 1/2688*a1^8, rep[2,3,1,1,1] = 1/3360*a1^8, rep[2,3,1,1,2] = 1/720*a2^1*a1+6+1/2880*a1^8, rep[2,3,1,2,1] = 1/3360*a1^8, rep[2,3,1,2,2] = 1/4032*a1^8, rep[2,3,2,1,1] = 1/5040*a1^8, rep[2,4,1,1,1] = 1/6720*a1^8, rep[1,1,1,1,3] = 1/360*a3^1*a5+1/180*a2^1*a1+6+1/960*a1^8+1/192*a2^2*a1^4, rep[1,1,1,2,2] = 1/192*a2^2*a1^4+1/288*a2^1*a1+6+1/1152*a1^8, rep[1,1,1,3,1] = 1/1344*a1^8-1/192*a2^2*a1^4, rep[1,1,1,2,1,2] = 1/360*a2^1*a1+6+1/1440*a1^8, rep[1,1,1,2,2,1] = 1/1680*a1^8, rep[1,1,1,3,1,1] = 1/2016*a1^8, rep[1,1,2,1,1,2] = 1/480*a2^1*a1+6+1/1920*a1^8, rep[1,1,2,1,2,1] = 1/2240*a1^8, rep[1,1,2,2,1,1] = 1/2688*a1^8, rep[1,1,3,1,1,1] = 1/3360*a1^8, rep[1,2,1,1,1,2] = 1/720*a2^1*a1+6+1/2880*a1^8, rep[1,2,1,1,2,1] = 1/1440*a2^1*a1+6+1/5760*a1^8, rep[2,1,1,2,1,1] = 1/6720*a1^8, rep[2,1,1,2,1,1] = 1/8064*a1^8, rep[2,1,2,1,1,1] = 1/10080*a1^8, rep[2,2,1,1,1,1] = 1/13440*a1^8, rep[3,1,1,1,1,1] = 1/20160*a1^8, rep[1,1,1,1,1,2] = 1/1440*a2^1*a1+6+1/5760*a1^8, rep[1,1,1,1,1,1,1] = 1/6720*a1^8, rep[1,1,1,1,2,1,1] = 1/8064*a1^8, rep[1,1,1,2,1,1,1] = 1/10080*a1^8, rep[1,1,2,1,1,1,1] = 1/13440*a1^8, rep[1,2,1,1,1,1,1] = 1/20160*a1^8, rep[2,1,1,1,1,1,1] = 1/40320*a1^8

serrep9= []

rep[9] = [10/9*a3^2*a1^3+4/9*a3^2*a3+7/9*a3^1*a6+8/9*a2^1*a7+5/9*a1^2*a4+20/9*a2^3*a1^3+7/3*a2^2*a1^5+2/9*a1^8+1/9*a9+10/3*a5^2*a1^4+10/3*a3^2*a2^1*a1^2+4/3*a3^2*a1^2+20/9*a4^2*a1^3+4/3*a4^3*a1^2+2/3*a4^3*a3^1*a2+2/3*a5^2*a1^4+2/3*a5^1*a3+2/3*a6^2+2/9*a7^2+1/3*a7^1*a2+2/9*a6^3+4/9*a6^1*a3+2/9*a5^4+1/3*a5^4*a2+5/9*a5^1*a4+1/3*a1^4+2/3*a4^1*a5+1/9*a3^3+1/29*a5, rep[1,8] = 341/360*a3^2*a1^3+4/9/1680*a3^2*a3+3/4*a3^1*a6+7/8*a2^1*a7+5933/13440*a1^2+a4+181343/90720*a2^3*a1^3+22457/10080*a2^1*a5+1/8*a1^8+7697/2520*a3^2*a1^4+8311/3024*a3^2*a2^1*a1+2+6989/7560*a3^2*a1^2+3217/1680*a4^2*a2^1*a3+9521/10080*a4^1*a2+2+121/120*a4^3*a1^2+2+787/2520*a4^3*a2+653/630*a5^2*a1^2+71/180*a5^1*a3+53/126*a6^1*a2+1/14*a7^1*a2+1/4*a7^1*a2+1/18*a6^3+3/8*a6^1*a3+1/20*a5^4+a4+1/20*a5^4+a2+1/2*a5^1*a4+31/160*a1^4+4+2/58*a1^5+4/81*a3^3+1/9*a1^9, rep[2,7] = 1037/2520*a3^2*a1^3+3/14*a3^2*a3+5/14*a3^1*a6+3/7*a2^1*a7+221/896*a1^2+a4+12463/12960*a2^3*a1^3+10757/10080*a2^2*a1^5+3557/2520*a3^2*a1^4+20071/15120*a3^2*a2^1*a2+458/945*a3^2*a1^2+1417/1680*a4^2*a1^3+5027/10080*a4^1*a2+2+337/840*a4^3*a1^2+341/1260*a4^3*a2+541/1260*a5^2*a1^2+1/390*a5^1*a3+43/252*a6^1*a2+1/14*a7^1*a2+1/14*a7^1*a2+1/18*a6^3+1/7*a6^1*a1+3+1/7*a5^4+a2+3/14*a5^4+a1+1/160*a1^4+1/160*a1^4+4+2/7*a4^2+1/160*a1^5+7/162*a3^3+1/18*a1^9, rep[3,6] = 91/360*a3^2*a1^3+3/360*a3^2*a2+2/9*a3^1*a1+6+5/18*a2^1*a7+727/5760*a1^2+a4+2573/4320*a2^3*a1^3+971/1440*a2^2*a1^5+311/360*a3^2*a1^4+119/144*a3^2*a2+1/31/90*a3^2*a1^2+353/720*a4^2*a1^3+413/1440*a4^1*a2+2+31/20*a4^3*a1^2+23/180*a4^3*a2+43/180*a5^2*a1^2+13/90*a4^1*a3+1/9*a6^1*a1+2+1/18*a6^3+1/18*a6^1*a3+1/20*a5^4+a1+40/a5^4+a2+1/9*a5^1*a4+11/160*a1^4+4+2/7*a4^2+1/160*a1^5+7/162*a3^3+1/18*a1^9, rep[3,6] = 91/360*a3^2*a1^3+3/360*a3^2*a2+2/9*a3^1*a1+6+5/18*a2^1*a7+727/5760*a1^2+a4+2573/4320*a2^3*a1^3+971/1440*a2^2*a1^5+311/360*a3^2*a1^4+119/144*a3^2*a2+1/31/90*a3^2*a1^2+353/720*a4^2*a1^3+413/1440*a4^1*a2+2+31/20*a4^3*a1^2+23/180*a4^3*a2+43/180*a5^2*a1^2+13/90*a4^1*a3+1/9*a6^1*a1+2+1/18*a6^3+1/18*a6^1*a3+1/20*a5^4+a1+40/a5^4+a2+1/9*a5^1*a4+11/160*a1^4+4+2/7*a4^2+1/160*a1^5+7/162*a3^3+1/18*a1^9, rep[3,6] = 91/360*a3^2*a1^3+3/360*a3^2*a2+2/9*a3^1*a1+6+5/18*a2^1*a7+727/5760*a1^2+a4+2573/4320*a2^3*a1^3+971/1440*a2^2*a1^5+311/360*a3^2*a1^4+119/144*a3^2*a2+1/31/90*a3^2*a1^2+353/720*a4^2*a1^3+413/1440*a4^1*a2+2+31/20*a4^3*a1^2+23/180*a4^3*a2+43/180*a5^2*a1^2+13/90*a4^1*a3+1/9*a6^1*a1+2+1/18*a6^3+1/18*a6^1*a3+1/20*a5^4+a1+40/a5^4+a2+1/9*a5^1*a4+11/160*a1^4+4+2/7*a4^2+1/160*a1^5+7/162*a3^3+1/18*a1^9, rep[3,6] = 91/360*a3^2*a1^3+3/360*a3^2*a2+2/9*a3^1*a1+6+5/18*a2^1*a7+727/5760*a1^2+a4+2573/4320*a2^3*a1^3+971/1440*a2^2*a1^5+311/360*a3^2*a1^4+119/144*a3^2*a2+1/31/90*a3^2*a1^2+353/720*a4^2*a1^3+413/1440*a4^1*a2+2+31/20*a4^3*a1^2+23/180*a4^3*a2+43/180*a5^2*a1^2+13/90*a4^1*a3+1/9*a6^1*a1+2+1/18*a6^3+1/18*a6^1*a3+1/20*a5^4+a1+40/a5^4+a2+1/9*a5^1*a4+11/160*a1^4+4+2/7*a4^2+1/160*a1^5+7/162*a3^3+1/18*a1^9, rep[3,6] = 91/360*a3^2*a1^3+3/360*a3^2*a2+2/9*a3^1*a1+6+5/18*a2^1*a7+727/5760*a1^2+a4+2573/4320*a2^3*a1^3+971/1440*a2^2*a1^5+311/360*a3^2*a1^4+119/144*a3^2*a2+1/31/90*a3^2*a1^2+353/720*a4^2*a1^3+413/1440*a4^1*a2+2+31/20*a4^3*a1^2+23/180*a4^3*a2+43/180*a5^2*a1^2+13/90*a4^1*a3+1/9*a6^1*a1+2+1/18*a6^3+1/18*a6^1*a3+1/20*a5^4+a1+40/a5^4+a2+1/9*a5^1*a4+11/160*a1^4+4+2/7*a4^2+1/160*a1^5+7/162*a3^3+1/18*a1^9, rep[3,6] = 91/360*a3^2*a1^3+3/360*a3^2*a2+2/9*a3^1*a1+6+5/18*a2^1*a7+727/5760*a1^2+a4+2573/4320*a2^3*a1^3+971/1440*a2^2*a1^5+311/360*a3^2*a1^4+119/144*a3^2*a2+1/31/90*a3^2*a1^2+353/720*a4^2*a1^3+413/1440*a4^1*a2+2+31/20*a4^3*a1^2+23/180*a4^3*a2+43/180*a5^2*a1^2+13/90*a4^1*a3+1/9*a6^1*a1+2+1/18*a6^3+1/18*a6^1*a3+1/20*a5^4+a1+40/a5^4+a2+1/9*a5^1*a4+11/160*a1^4+4+2/7*a4^2+1/160*a1^5+7/162*a3^3+1/18*a1^9, rep[3,6] = 91/360*a3^2*a1^3+3/360*a3^2*a2+2/9*a3^1*a1+6+5/18*a2^1*a7+727/5760*a1^2+a4+2573/4320*a2^3*a1^3+971/1440*a2^2*a1^5+311/360*a3^2*a1^4+119/144*a3^2*a2+1/31/90*a3^2*a1^2+353/720*a4^2*a1^3+413/1440*a4^1*a2+2+31/20*a4^3*a1^2+23/180*a4^3*a2+43/180*a5^2*a1^2+13/90*a4^1*a3+1/9*a6^1*a1+2+1/18*a6^3+1/18*a6^1*a3+1/20*a5^4+a1+40/a5^4+a2+1/9*a5^1*a4+11/160*a1^4+4+2/7*a4^2+1/160*a1^5+7/162*a3^3+1/18*a1^9, rep[3,6] = 91/360*a3^2*a1^3+3/360*a3^2*a2+2/9*a3^1*a1+6+5/18*a2^1*a7+727/5760*a1^2+a4+2573/4320*a2^3*a1^3+971/1440*a2^2*a1^5+311/360*a3^2*a1^4+119/144*a3^2*a2+1/31/90*a3^2*a1^2+353/720*a4^2*a1^3+413/1440*a4^1*a2+2+31/20*a4^3*a1^2+23/180*a4^3*a2+43/180*a5^2*a1^2+13/90*a4^1*a3+1/9*a6^1*a1+2+1/18*a6^3+1/18*a6^1*a3+1/20*a5^4+a1+40/a5^4+a2+1/9*a5^1*a4+11/160*a1^4+4+2/7*a4^2+1/160*a1^5+7/162*a3^3+1/18*a1^9, rep[3,6] = 91/360*a3^2*a1^3+3/360*a3^2*a2+2/9*a3^1*a1+6+5/18*a2^1*a7+727/5760*a1^2+a4+2573/4320*a2^3*a1^3+971/1440*a2^2*a1^5+311/360*a3^2*a1^4+119/144*a3^2*a2+1/31/90*a3^2*a1^2+353/720*a4^2*a1^3+413/1440*a4^1*a2+2+31/20*a4^3*a1^2+23/180*a4^3*a2+43/180*a5^2*a1^2+13/90*a4^1*a3+1/9*a6^1*a1+2+1/18*a6^3+1/18*a6^1*a3+1/20*a5^4+a1+40/a5^4+a2+1/9*a5^1*a4+11/160*a1^4+4+2/7*a4^2+1/160*a1^5+7/162*a3^3+1/18*a1^9, rep[3,6] = 91/360*a3^2*a1^3+3/360*a3^2*a2+2/9*a3^1*a1+6+5/18*a2^1*a7+727/5760*a1^2+a4+2573/4320*a2^3*a1^3+971/1440*a2^2*a1^5+311/360*a3^2*a1^4+119/144*a3^2*a2+1/31/90*a3^2*a1^2+353/720*a4^2*a1^3+413/1440*a4^1*a2+2+31/20*a4^3*a1^2+23/180*a4^3*a2+43/180*a5^2*a1^2+13/90*a4^1*a3+1/9*a6^1*a1+2+1/18*a6^3+1/18*a6^1*a3+1/20*a5^4+a1+40/a5^4+a2+1/9*a5^1*a4+11/160*a1^4+4+2/7*a4^2+1/160*a1^5+7/162*a3^3+1/18*a1^9, rep[3,6] = 91/360*a3^2*a1^3+3/360*a3^2*a2+2/9*a3^1*a1+6+5/18*a2^1*a7+727/5760*a1^2+a4+2573/4320*a2^3*a1^3+971/1440*a2^2*a1^5+311/360*a3^2*a1^4+119/144*a3^2*a2+1/31/90*a3^2*a1^2+353/720*a4^2*a1^3+413

= 1/864*a1^9-5/288*a2^2*a1^5-1/72*a2^3*a1^3-1/72*a3*a2*a1^4-1/128*a1^2*a^4, rep[1,2,2,1,3] = 1/270*a3*a1^6+1/135*a2*a1^7+1/810*a1^9+1/120*a2^2*a1^5+1/144*a2^3*a1^3+1/384*a1^2*a^4, rep[1,2,2,2,2] = 1/384*a1^2*a^4+1/144*a2^3*a1^3+1/120*a2^2*a1^5+1/210*a2*a1^7+1/945*a1^9, rep[1,2,2,3,1] = -1/128*a1^2*a^4-1/72*a2^3*a1^3+1/1080*a1^9-1/120*a2^2*a1^5, rep[1,2,3,1,2] = -5/384*a1^2*a^4+1/252*a2^2*a1^7-1/72*a2^3*a1^3+1/1134*a1^9, rep[1,2,3,2,1] = 1/128*a1^2*a^4+1/1296*a1^9+1/144*a2^3*a1^3, rep[1,2,4,1,1] = 1/128*a1^2*a^4+1/1512*a1^9+1/144*a2^3*a1^3, rep[1,3,1,1,3] = 1/360*a3*a1^6+1/180*a2*a1^7-1/128*a1^2*a^4+1/160*a2^2*a1^5+1/1080*a1^9, rep[1,3,1,2,2] = 1/160*a2^2*a1^5-1/128*a1^2*a^4+1/280*a2*a1^7+1/1260*a1^9, rep[1,3,1,3,1] = 1/1440*a1^9-1/160*a2^2*a1^5+3/84*a1^2*a^4, rep[1,3,2,1,2] = 1/336*a2*a1^7+1/128*a1^2*a^4+1/1512*a1^9, rep[1,3,2,2,1] = 1/1728*a1^9-1/384*a1^2*a^4, rep[1,3,3,1,1] = 1/2016*a1^9-1/384*a1^2*a^4, rep[1,4,1,1,2] = 1/420*a2*a1^7+1/128*a1^2*a^4+1/1890*a1^9, rep[1,4,1,2,1] = 1/2160*a1^9-1/384*a1^2*a^4, rep[1,4,2,1,1] = 1/2520*a1^9-1/384*a1^2*a^4, rep[1,5,1,1,1] = 1/3024*a1^9-1/384*a1^2*a^4, rep[2,1,1,4,1] = 1/480*a4*a1^5+1/240*a3*a1^6+31/2880*a2^2*a1^5+1/160*a2*a1^7+1/1080*a1^9+1/144*a3*a2*a1^4+1/288*a2^3*a1^3, rep[2,1,1,2,3] = 1/144*a3*a2*a1^4+1/432*a3*a1^6+1/216*a2*a1^7+1/1296*a1^9+5/576*a2^2*a1^5+1/288*a2^3*a1^3, rep[2,1,1,3,2] = 1/192*a2^2*a1^5+1/336*a2*a1^7+1/1512*a1^9+1/288*a2^3*a1^3, rep[2,1,1,4,1] = 1/1728*a1^9-5/576*a2^2*a1^5-1/144*a2^3*a1^3-1/144*a3*a2*a1^4, rep[2,1,2,1,3] = 1/540*a3*a1^6+1/270*a2*a1^7+1/1620*a1^9+1/240*a2^2*a1^5+1/288*a2^3*a1^3, rep[2,1,2,2,2] = 1/288*a2^3*a1^3+1/240*a2^2*a1^5+1/420*a2*a1^7+1/1890*a1^9, rep[2,1,2,3,1] = 1/2160*a1^9-1/240*a2^2*a1^5-1/144*a2^3*a1^3, rep[2,1,3,1,2] = 1/504*a2*a1^7-1/144*a2^3*a1^3+1/2268*a1^9, rep[2,1,3,2,1] = 1/2592*a1^9+1/288*a2^3*a1^3, rep[2,1,4,1,1] = 1/3024*a1^9+1/288*a2^3*a1^3, rep[2,2,1,1,3] = 1/720*a3*a1^6+1/360*a2*a1^7+1/2160*a1^9+1/320*a2^2*a1^5, rep[2,2,1,2,2] = 1/320*a2^2*a1^5+1/560*a2*a1^7+1/2520*a1^9, rep[2,2,1,3,1] = 1/2880*a1^9-1/320*a2^2*a1^5, rep[2,2,2,1,2] = 1/672*a2*a1^7+1/3024*a1^9, rep[2,2,2,2,1] = 1/3456*a1^9, rep[2,2,3,1,1] = 1/4032*a1^9, rep[2,3,1,1,2] = 1/840*a2*a1^7+1/3780*a1^9, rep[2,3,1,2,1] = 1/4320*a1^9, rep[2,3,2,1,1] = 1/5040*a1^9, rep[2,4,1,1,1] = 1/6048*a1^9, rep[3,1,1,1,3] = 1/1080*a3*a1^6+1/540*a2*a1^7+1/3240*a1^9+1/480*a2^2*a1^5, rep[3,1,1,2,2] = 1/480*a2^2*a1^5+1/840*a2*a1^7+1/3780*a1^9, rep[3,1,1,3,1] = 1/4320*a1^9-1/480*a2^2*a1^5, rep[3,1,2,1,2] = 1/1008*a2*a1^7+1/4536*a1^9, rep[3,1,2,2,1] = 1/5184*a1^9, rep[3,1,3,1,1] = 1/6048*a1^9, rep[3,2,1,1,2] = 1/1260*a2*a1^7+1/5670*a1^9, rep[3,2,1,2,1] = 1/6480*a1^9, rep[3,2,2,1,1] = 1/7560*a1^9, rep[3,3,1,1,1] = 1/9072*a1^9, rep[4,1,1,1,2] = 1/1680*a2*a1^7+1/7560*a1^9, rep[4,1,1,2,1] = 1/8640*a1^9, rep[4,1,2,1,1] = 1/10080*a1^9, rep[4,2,1,1,1] = 1/12096*a1^9, rep[5,1,1,1,1] = 1/15120*a1^9, rep[1,1,1,1,4] = 1/480*a4*a1^5+1/240*a3*a1^6+31/2880*a2^2*a1^5+1/160*a2*a1^7+1/1080*a1^9+1/144*a3*a2*a1^4+1/288*a2^3*a1^3, rep[1,1,1,2,3] = 1/144*a3*a2*a1^4+1/432*a3*a1^6+1/216*a2*a1^7+1/1296*a1^9+5/576*a2^2*a1^5+1/288*a2^3*a1^3, rep[1,1,1,3,2] = 1/192*a2^2*a1^5+1/336*a2*a1^7+1/1512*a1^9+1/288*a2^3*a1^3, rep[1,1,1,4,1] = 1/1728*a1^9-5/576*a2^2*a1^5-1/144*a2^3*a1^3-1/144*a3*a2*a1^4, rep[1,1,1,2,1,3] = 1/540*a3*a1^6+1/270*a2*a1^7+1/1620*a1^9+1/240*a2^2*a1^5+1/288*a2^3*a1^3, rep[1,1,1,2,2,2] = 1/288*a2^3*a1^3+1/240*a2^2*a1^5+1/420*a2*a1^7+1/1890*a1^9, rep[1,1,1,2,3,1] = 1/2160*a1^9-1/240*a2^2*a1^5-1/144*a2^3*a1^3, rep[1,1,1,3,1,2] = 1/504*a2*a1^7-1/144*a2^3*a1^3+1/2268*a1^9, rep[1,1,1,3,2,1] = 1/2592*a1^9+1/288*a2^3*a1^3, rep[1,1,1,4,1,1] = 1/3024*a1^9+1/288*a2^3*a1^3, rep[1,1,2,1,1,3] = 1/720*a3*a1^6+1/360*a2*a1^7+1/2160*a1^9+1/320*a2^2*a1^5, rep[1,1,2,1,2,2] = 1/320*a2^2*a1^5+1/560*a2*a1^7+1/2520*a1^9, rep[1,1,2,1,3,1] = 1/2880*a1^9-1/320*a2^2*a1^5, rep[1,1,2,2,1,2] = 1/672*a2*a1^7+1/3024*a1^9, rep[1,1,2,2,2,1] = 1/3456*a1^9, rep[1,1,2,3,1,1] = 1/4032*a1^9, rep[1,1,3,1,1,2] = 1/840*a2*a1^7+1/3780*a1^9, rep[1,1,3,1,2,1] = 1/4320*a1^9, rep[1,1,3,2,1,1] = 1/5040*a1^9, rep[1,1,4,1,1,1] = 1/6048*a1^9, rep[1,2,1,1,1,3] = 1/1080*a3*a1^6+1/540*a2*a1^7+1/3240*a1^9+1/480*a2^2*a1^5, rep[1,2,1,1,2,1] = 1/480*a2^2*a1^5+1/840*a2*a1^7+1/3780*a1^9, rep[1,2,1,1,3,1] = 1/4320*a1^9-1/480*a2^2*a1^5, rep[1,2,1,2,1,2] = 1/1008*a2*a1^7+1/4536*a1^9, rep[1,2,1,2,2,1] = 1/5184*a1^9, rep[1,2,1,3,1,1] = 1/6048*a1^9, rep[1,2,2,1,1,2] = 1/1260*a2*a1^7+1/5670*a1^9, rep[1,2,2,1,2,1] = 1/6480*a1^9, rep[1,2,2,2,1,1] = 1/7560*a1^9, rep[1,2,3,1,1,1] = 1/9072*a1^9, rep[1,3,1,1,1,2] = 1/1680*a2*a1^7+1/7560*a1^9, rep[1,3,1,1,2,1] = 1/8640*a1^9, rep[1,3,1,2,1,1] = 1/10080*a1^9, rep[1,3,2,1,1,1] = 1/12096*a1^9, rep[1,4,1,1,1,1] = 1/15120*a1^9, rep[2,1,1,1,1,3] = 1/2160*a3*a1^6+1/1080*a2*a1^7+1/6480*a1^9+1/960*a2^2*a1^5, rep[2,1,1,1,2,2] = 1/960*a2^2*a1^5+1/1680*a2*a1^7+1/7560*a1^9, rep[2,1,1,1,3,1] = 1/8640*a1^9-1/960*a2^2*a1^5, rep[2,1,1,2,1,2] = 1/2016*a2*a1^7+1/9072*a1^9, rep[2,1,1,2,2,1] = 1/10368*a1^9, rep[2,1,1,3,1,1] = 1/12096*a1^9, rep[2,1,2,1,1,2] = 1/2520*a2*a1^7+1/11340*a1^9, rep[2,1,2,1,2,1] = 1/12960*a1^9, rep[2,1,2,2,1,1] = 1/15120*a1^9, rep[2,1,3,1,1,1] = 1/18144*a1^9, rep[2,2,1,1,1,2] = 1/3360*a2*a1^7+1/15120*a1^9, rep[2,2,1,1,2,1] = 1/17280*a1^9, rep[2,2,1,2,1,1] = 1/20160*a1^9, rep[2,2,1,1,1,1] = 1/24192*a1^9, rep[2,3,1,1,1,1] = 1/30240*a1^9, rep[3,1,1,1,1,2] = 1/5040*a2*a1^7+1/22680*a1^9, rep[3,1,1,1,2,1] = 1/25920*a1^9, rep[3,1,2,1,1,1] = 1/30240*a1^9, rep[3,1,2,1,1,1] = 1/36288*a1^9, rep[3,2,1,1,1,1] = 1/45360*a1^9, rep[4,1,1,1,1,1] = 1/60480*a1^9, rep[1,1,1,1,1,3] = 1/2160*a3*a1^6+1/1080*a2*a1^7+1/6480*a1^9+1/960*a2^2*a1^5, rep[1,1,1,1,1,2] = 1/960*a2^2*a1^5+1/1680*a2*a1^7+1/7560*a1^9, rep[1,1,1,1,1,3,1] = 1/8640*a1^9-1/960*a2^2*a1^5, rep[1,1,1,1,1,2,1] = 1/2016*a2*a1^7+1/9072*a1^9, rep[1,1,1,1,2,2,1] = 1/10368*a1^9, rep[1,1,1,1,3,1,1] = 1/12096*a1^9, rep[1,1,1,2,1,2] = 1/2520*a2*a1^7+1/11340*a1^9, rep[1,1,1,2,1,2,1] = 1/12960*a1^9, rep[1,1,1,2,2,1,1] = 1/15120*a1^9, rep[1,1,1,3,1,1,1] = 1/18144*a1^9, rep[1,1,2,1,1,1,1] = 1/3360*a2*a1^7+1/15120*a1^9, rep[1,1,2,1,1,2,1] = 1/17280*a1^9, rep[1,1,2,1,2,1,1] = 1/20160*a1^9, rep[1,1,2,2,1,1,1] = 1/24192*a1^9, rep[1,2,1,1,1,1,1] = 1/30240*a1^9, rep[1,2,1,1,1,1,2] = 1/5040*a2*a1^7+1/22680*a1^9, rep[1,2,1,1,2,1,1] = 1/25920*a1^9, rep[1,2,1,1,2,1,1] = 1/30240*a1^9, rep[1,2,1,2,1,1,1] = 1/36288*a1^9, rep[1,2,1,1,1,1,1] = 1/45360*a1^9, rep[1,3,1,1,1,1,1] = 1/60480*a1^9, rep[2,1,1,1,1,1,1,2] = 1/10080*a2*a1^7+1/45360*a1^9, rep[2,1,1,1,1,1,2,1] = 1/51840*a1^9, rep[2,1,1,1,2,1,1] = 1/60480*a1^9, rep[2,1,1,2,1,1,1] = 1/72576*a1^9, rep[2,1,2,1,1,1,1] = 1/90720*a1^9, rep[2,2,1,1,1,1,1,1] = 1/120960*a1^9, rep[3,1,1,1,1,1,1,1] = 1/181440*a1^9, rep[1,1,1,1,1,1,2,1] = 1/10080*a2*a1^7+1/45360*a1^9, rep[1,1,1,1,1,2,1,1] = 1/51840*a1^9, rep[1,1,1,1,2,1,1,1] = 1/60480*a1^9, rep[1,1,1,1,2,1,1,1] = 1/72576*a1^9, rep[1,1,1,1,2,1,1,1,1] = 1/90720*a1^9, rep[1,1,2,1,1,1,1,1,1] = 1/120960*a1^9, rep[1,2,1,1,1,1,1,1,1] = 1/181440*a1^9, rep[2,1,1,1,1,1,1,1,1] = 1/362880*a1^9, rep[1,1,1,1,1,1,1,1,1] = 1/362880*a1^9

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