```
> read "hsum9.mpl";
```
Package "Hypergeometric Summation", Maple V - Maple 9

The Clausen term:

```
> summand:=proc(k) hyperterm([a,b],[a+b+1/2],x,k) end:
```

Zeilberger's algorithms yields a recurrence equation for the summand of the Cauchy product

```
> RE:=sumrecursion(summand(k)*summand(n-k),k,S(n));
```

$$RE := 2\,x\,(n+2\,b)\,(n+2\,a)\,(n+a+b)\,S(n) - (n+1)\,(n+2\,b+2\,a)\,(2\,n+1+2\,b+2\,a)\,S(n+1) = 0$$

which can be solved:

```
> closedform(summand(k)*summand(n-k),k,n);
```

$$\frac{\text{pochhammer}(2\,b,n)\,\text{pochhammer}(2\,a,n)\,\text{pochhammer}(a+b,n)\,x^n}{\text{pochhammer}(2\,b+2\,a,n)\,\text{pochhammer}\left(a+b+\frac{1}{2},n\right)n!}$$

Without evaluation, we get

```
> Closedform(summand(k)*summand(n-k),k,n);
```

$$\text{Hyperterm}\left([2\,b,2\,a,a+b],\left[2\,b+2\,a,a+b+\frac{1}{2}\right],x,n\right)$$

```
>
```