The formula we need to solve:

 

Where



Assume



So we have



We suppose



In polar coordinates.

First, we use the coordinate rotation to transform

Figure 1: (The graph for coordinate rotation)

From Figure 1, we have the coordinate convert:



Let



Figure 2: (The graph for coordinate rotation)

From Figure 2, we have the coordinate convert:



Let



Combine (1.2) and (1.3), we have



Where



We also get the inverse of formula (1.4)



Where

We plug formula (1.5) into the formula (1.1)





Let



We have



First, we consider a simple form:



Where



Then we can use this regression formula to construct the whole syntax since 

Part 2:

For any given number i, j, k, l, α, compute the Integral of the following function:



First, the integral for angel θ and ϕ can be totally separated as



Let



So



1. For the intθ



There are two cases:

Case 1: If i is an even number. Hence 



It can be simplified as when 



Suppose



This one have a regression function



That is



So the regression function is



So this regression function will help us to generate the value of the function. However, we still need to know the first three items of 

When 



We do some transform here and use the expansions.



Assume 



Let  that is 



Now we use binomial series to expand 



So



Let

When 



When 



Case 2: i is an odd number. Hence 



What we concern is



Let 

We have



Let  , we can convert (1.17) to



<https://en.wikipedia.org/wiki/List_of_integrals_of_exponential_functions>

(from <https://en.wikipedia.org/wiki/List_of_integrals_of_trigonometric_functions>)

1. For the intϕ



There are two cases:

Case 1: at least one of k and l is odd.

Suppose k is odd. Hence 

So we have



Plug formula (1.11) to (1.10), we have



Let 

So we have



Case 2: both of k and l are even. Hence 

We use the relationship in double angle translate:



So



where



Let , then



For formula (1.21), there is a regression function:



(From <https://en.wikipedia.org/wiki/List_of_integrals_of_trigonometric_functions>)

(Also see <http://mathworld.wolfram.com/CosineIntegral.html>)