Image of dimensions is defined as

Need to show:

Using Euler’s Formula, we know that

Plugging it in our function, we get

Helper lemma:

Therefore,

Continues in the next page.

Each of these sums is a Fourier transformation of , with its parameters being and , respectively.

And so, we get that

We’ve already established that , meaning

Putting it all together we got that

And so, we’ve shown that-

As required.