The chromaticity coordinates in the XYZ color space are defined as-

While .

When we combine the two lights, and , we simply add their XYZ components.

And so-

We will mark the coordinates of as and of as .

Now we shall find the coordinates of on the chromaticity diagram.

These coordinates can be calculated like so:

Where .

Let’s begin by finding an expression for the first coordinate component, -

Similarly, for -

And so, if we choose we will find that-

Which implies that-

As required.