The biggest challenge in the first homework is to catch the accurate color shift when testing the RGB gradient. In the first exercise, R is an x-axis gradient from left to right. G and B are both dynamic but the former is controlled by a time player which means it's changeable automatically, and the latter's shifting depends on users' Y-position mouse input. For the second exercise I mixed ColorA and ColorB but I find that this function is quite similar to how RGB works. As you see when I set the third color value as *st.x* or *st.y*, it shows the same gradient result. What's different between the two functions I observe is that the mix function makes it more flexible to control the color shifting because the RGB is too complicated to reach the desired color.

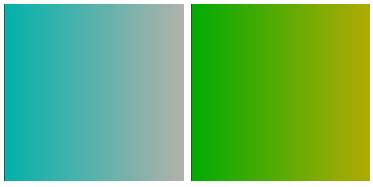
My first observation of this homework has been listed above, which is the similarity between RGB and color-mixing shader methods, and the second one I'm about to demonstrate is the relationship between the value and color shading. The third value of the mix function is an output controller which depends on how you would like to mix color, so it can be x-gradient or y-gradient, static or dynamic. I did a small test for curious to examine the color-mixing paths. It can not only be an x or y-axis gradient but also can be diagonal and even curved due to their different Mathematical formulas. However, you will see some of them have unexpected red but others don't. The caused reason is that when the value of your formulas is more than 1, the second color will be influenced by R value of the first color and then produces redundant color(The influence from the other color is definite but not sure it's from R, G or B. I made some tests and I found R is the most likely factor). Therefore, if you want to control the color shifting precisely, try to control the value range from 0 to 1.

Exercise#1

R x-axis gradient

G color shift

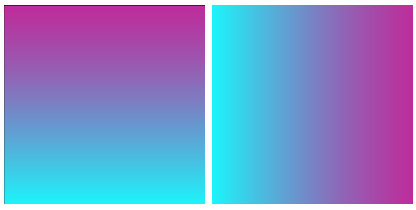
B color shift (Y =0 and Y =1)



Exercise#2

ColorA ColorB

sin(st.x) = st.x Sin(st.y) = st.y



tan(st.x) st.x/st.y st.x*st.y st.y*st.y/st.x