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```
% Adam Briggs  
% OPT222 HW5
```

Q1

```
load SkyBlue  
load cie  
SkyBlueInterp = interp1(SkyBlue(:,1),SkyBlue(:,2),(380:5:780)');  
SkyBlueInterp(:,2) = SkyBlueInterp(:,1);  
SkyBlueInterp(:,2) = SkyBlueInterp(:,1);  
SkyBlueInterp(:,1) = (380:5:780)';
```

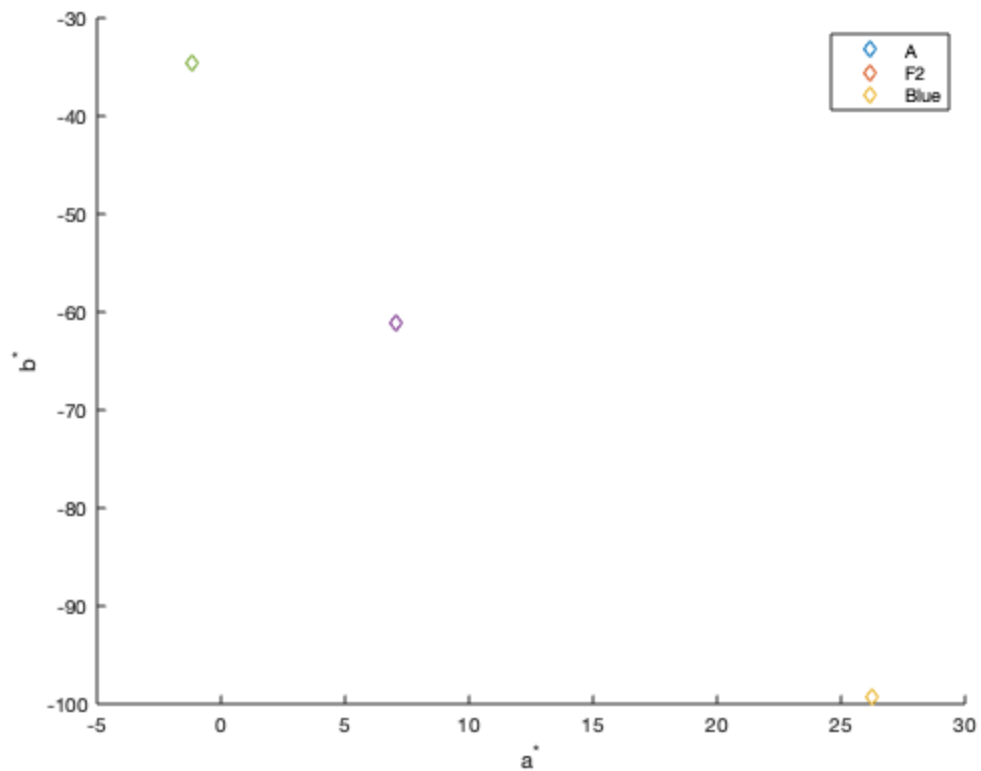
Q2

```
%Create XYZ arrays of various illuminants  
d65XYZ = ref2XYZ(ones(81,1),cie.cmf2deg,cie.illD65);  
aXYZ = ref2XYZ(ones(81,1),cie.cmf2deg,cie.illA);  
F2XYZ = ref2XYZ(ones(81,1),cie.cmf2deg,cie.illF(:,2));  
blueXYZ = ref2XYZ(SkyBlueInterp(:,2),cie.cmf2deg,cie.illD65);  
  
AtoD65_XYZ = XYZ_VK_XYZ(blueXYZ,aXYZ,d65XYZ);  
F2toD65_XYZ = XYZ_VK_XYZ(blueXYZ,F2XYZ,d65XYZ);
```

Q3

```
A_D65_Lab = XYZ2Lab(AtoD65_XYZ,d65XYZ);  
F2_D65_Lab = XYZ2Lab(F2toD65_XYZ,d65XYZ);  
blueLAB = XYZ2Lab(blueXYZ,d65XYZ);
```

```
figure(1)  
hold on  
plot(A_D65_Lab(2),A_D65_Lab(3),'d');  
plot(F2_D65_Lab(2),F2_D65_Lab(3),'d');  
plot(blueLAB(2),blueLAB(3),'d');  
hold off  
legend('A','F2','Blue')  
xlabel('a*')  
ylabel('b*')
```



Q4

```
diff_A_D65 = deltaE94(A_D65_Lab,blueLAB);
diff_F2_D65 = deltaE94(F2_D65_Lab,blueLAB);

disp(['The DE94 color difference between the illuminant A blue
and' ...
      'the original D65 blue is: ',num2str(diff_A_D65)]);

disp(['The DE94 color difference between the illuminant F2 blue
and' ...
      'the original D65 blue is: ',num2str(diff_F2_D65)]);

disp(['If these are >3, there is a just noticeable color difference.'])

% This painting will not maintain its blue sky appearance under either
% of
% the two other illuminants.

The DE94 color difference between the illuminant A blue andthe
original D65 blue is: 29.8636
The DE94 color difference between the illuminant F2 blue andthe
original D65 blue is: 11.66
If these are >3, there is a just noticeable color difference.
```

