MATH G5110: Lab 1c

Task 1: solve uR + v B + w G = 0

	R	G	B
x	0.67	0.21	0.14
y	0.33	0.71	0.08

```
K =

    0.6700    0.1400    0.2100
    0.3300    0.0800    0.7100


ans =

    1.0000         0  -11.1622
         0    1.0000   54.9189
```

So (u,v,w) = w*(11.1622,-54.9189,1), s = - w*42.7567

Task 2:
Have. A*(0.67,0.33)^T = (1,0)^T, A*(0.14,0.08)^T = (0,1)^T

Use same method as Lab 1b, so construct M, D1, D2 and compute A:

```
M=[0.67 0.33;0.14 0.08];
D1=[1;0];
D2=[0;1];

S=rref([M D1 D2]);
A=S(:,[3:4])'
```

```
A =

   10.8108  -18.9189
  -44.5946   90.5405
```

Task 3:

X = c R + d B = c R + d B + u R + v B + w G = (c + u) R + (d + v) B + w G = r R + b B + g G

Require r+b+g=1, so c+d+s=1, hence s = - w*42.7567 = 1 – c -d , therefore w = -(1-c-d)/42.7567

Hence r = c + u = c +11.1622*w
b = d + v = d -54.9189*w
g = w

Task 4:

First (c,d)^T = A*(0.3,0.5)^T = (-6.2162,31.8919)^T, therefore

w = -(1-c-d)/42.7567 = 0.5771

hence r = c +11.1622*w = 0.2257
b = d -54.9189*w = 0.1972
g = 0.5771

Task 5:

White is W = (R + B + G)/3 = (0.34, 0.373). So if X= (0.3, 0.5) then. X' = 2*W – X = (0.38, 0.247).

So redo Task 4 with x = 0.38, y = 0.247:

(c,d)^T = A*(0.38,0.247)^T = (-0.5649,5.4176)^T, therefore

w = -(1-c-d)/42.7567 = 0.0901

hence r = c +11.1622*w = 0.4409
b = d -54.9189*w = 0.4690
g = 0.0901