1.

0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	1	1	1	0	0
0	0	0	0	0	0	0	0	1	1	0
0	0	0	0	0	0	0	0	1	0	1
0	0	0	0	0	0	0	0	0	0	1
1	0	1	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0
0	1	1	1	1	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	1	1	0	0	0	0	0

This matrix is block diagonal because the main diagonal (top left to bottom right) is all zeros

2. Not sure how to do this part**

3. Purple: 1.67 Green: 24. Also not sure about this**

**I missed the lecture about projections. I reviewed the notes but I keep getting an error message with the attached pdf: