$$\omega(G, s) = 4$$

Step 1: decrease demand on v

1

1

1

v

1

1

1

$$\omega(G, s') = 4$$

Vertex v not in maximum demand clique
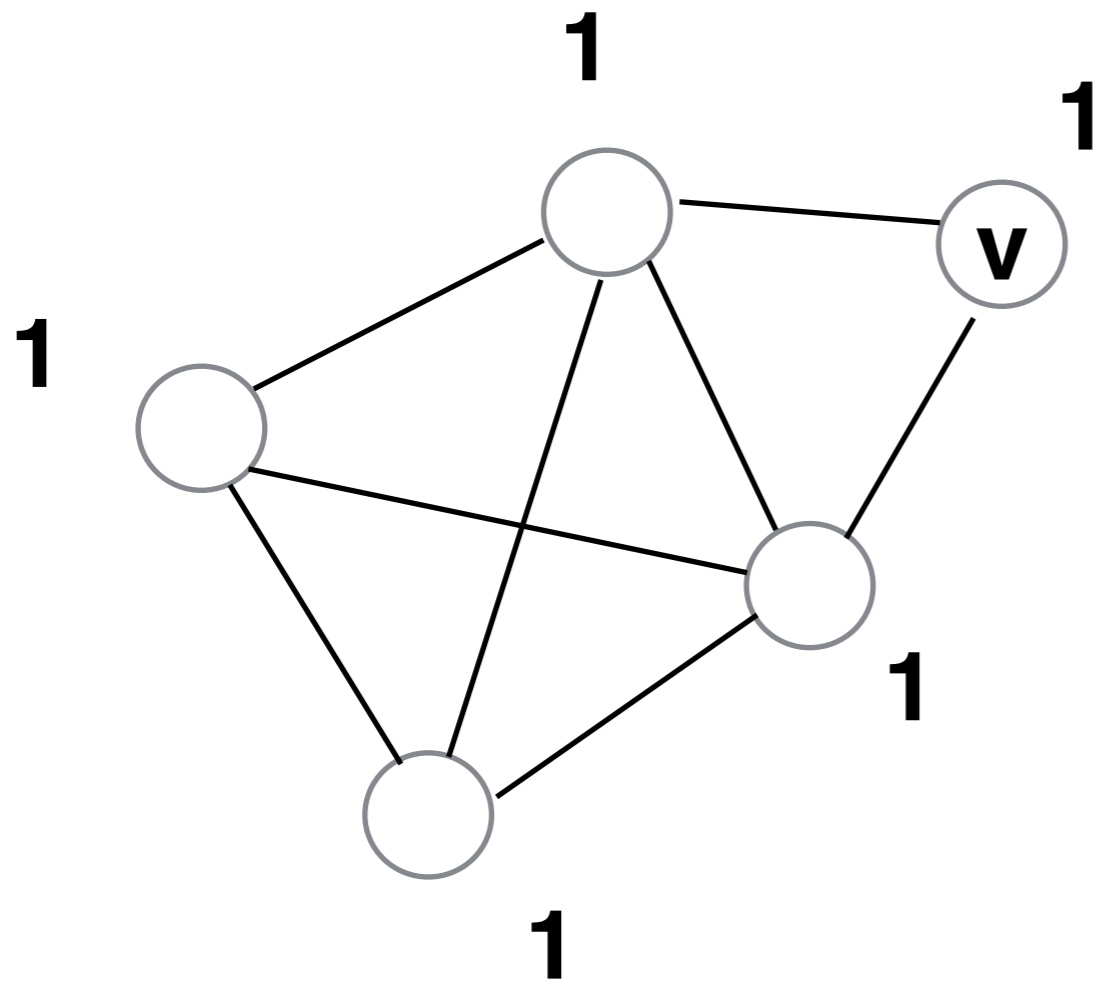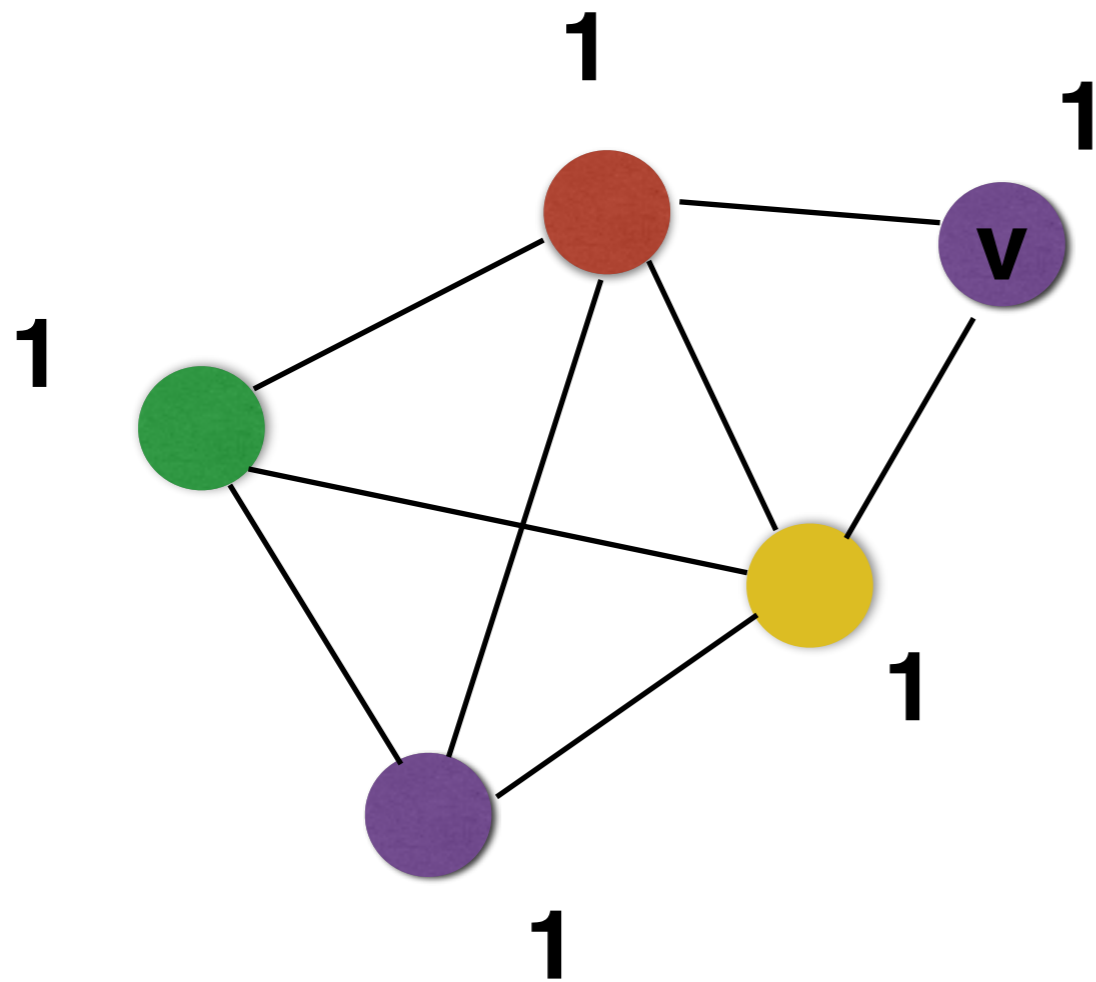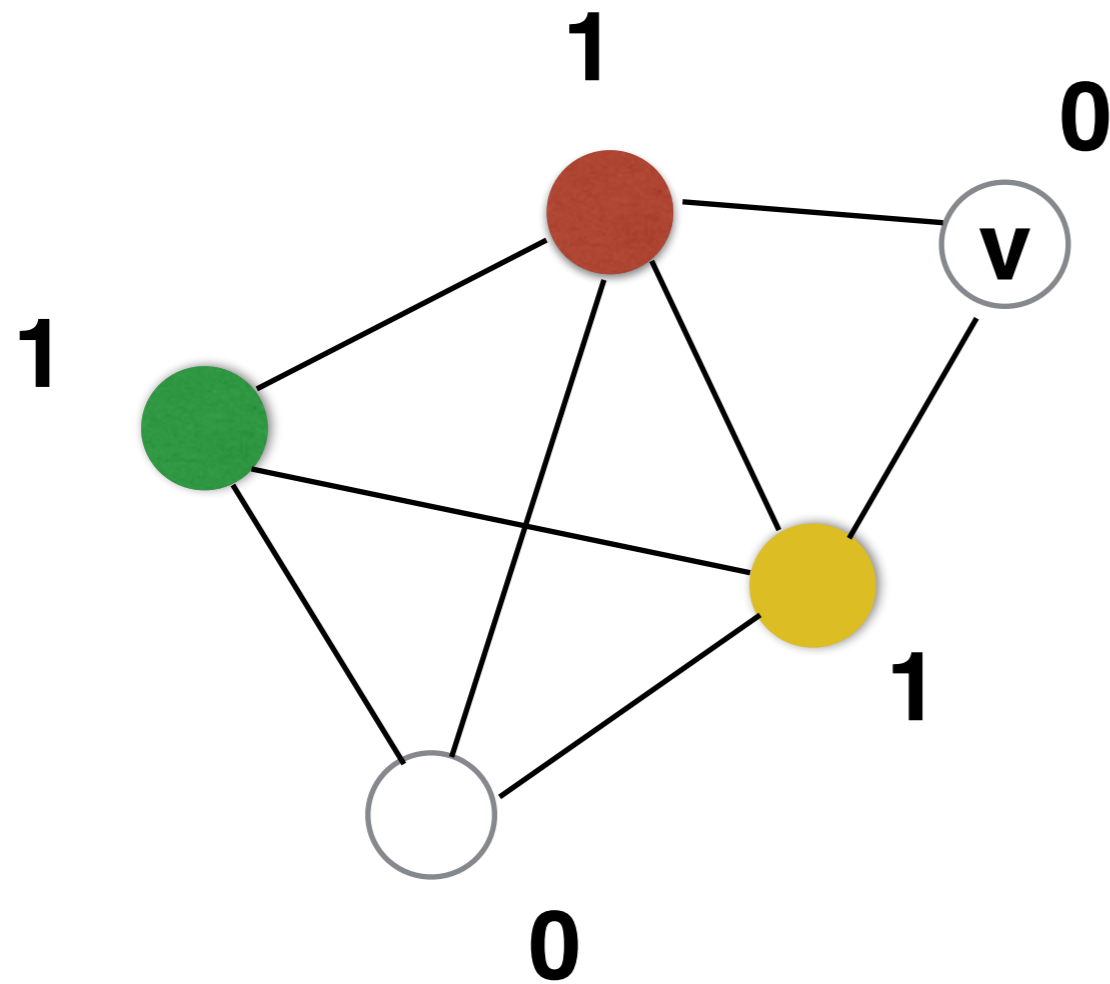Find colouring with inductive hypothesis

Step 1: decrease demand on v

$$\omega(G, s') = 4$$

$$\chi(G, s') = 4$$

Vertex v not in maximum demand clique
Find colouring with inductive hypothesis

Step 2: Decrease demand on colour class containing v
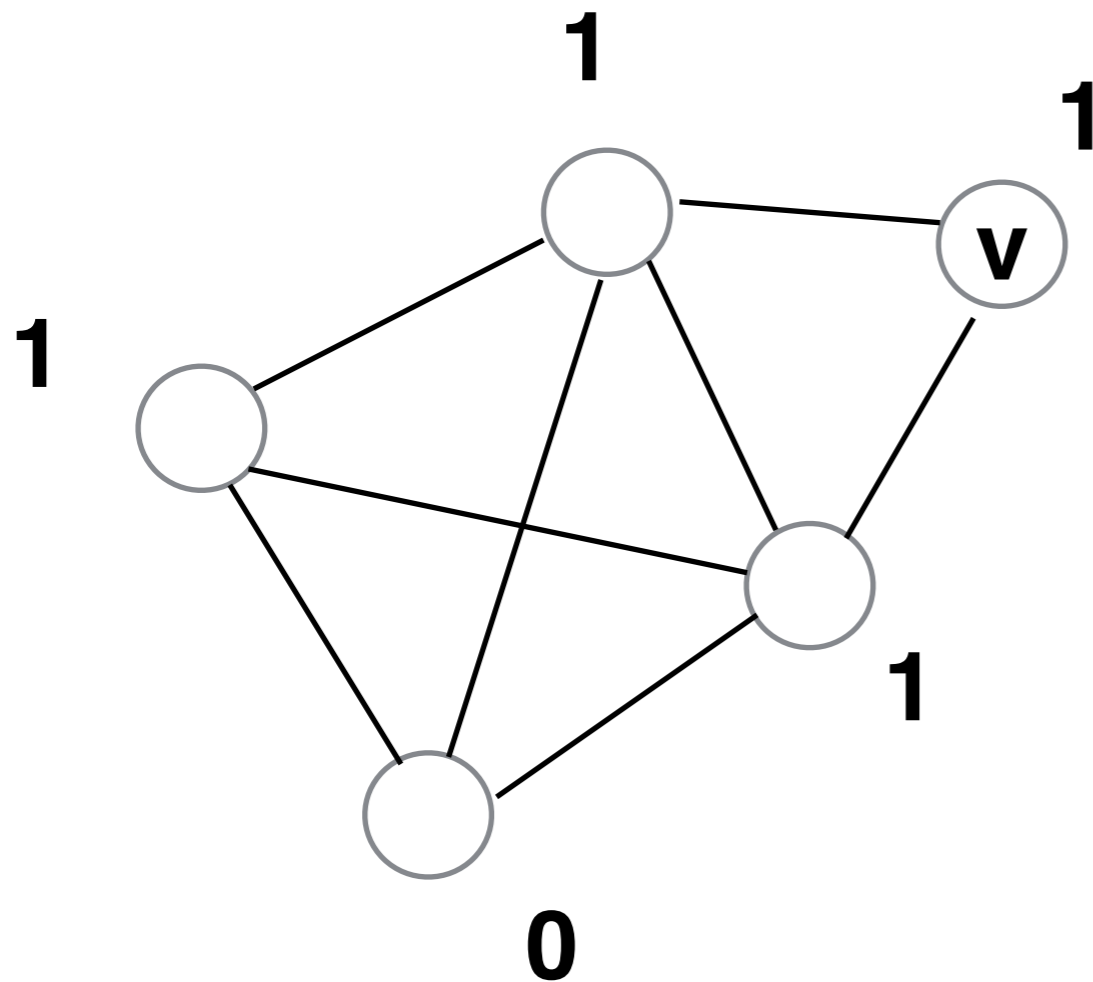

$$\chi(G, s_A) = 3$$

$$\omega(G, s_A) = 3$$

Vertex v not in maximum demand clique

Step 3: Increase demand on v

$$\omega(G, s'_A) = 3$$

$$\chi(G, s'_A) = 3$$

Clique number remains the same
since v not in maximum demand clique
Find colouring using induction
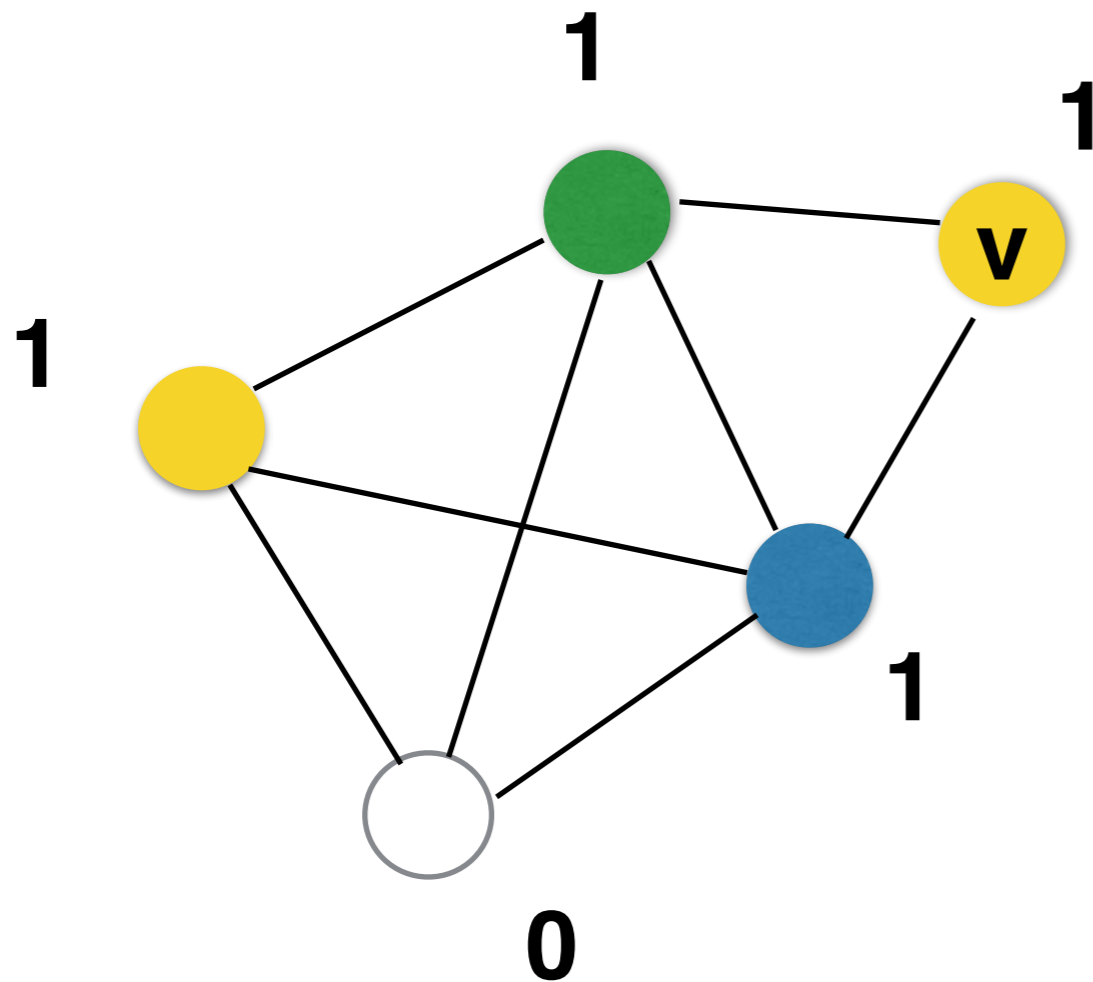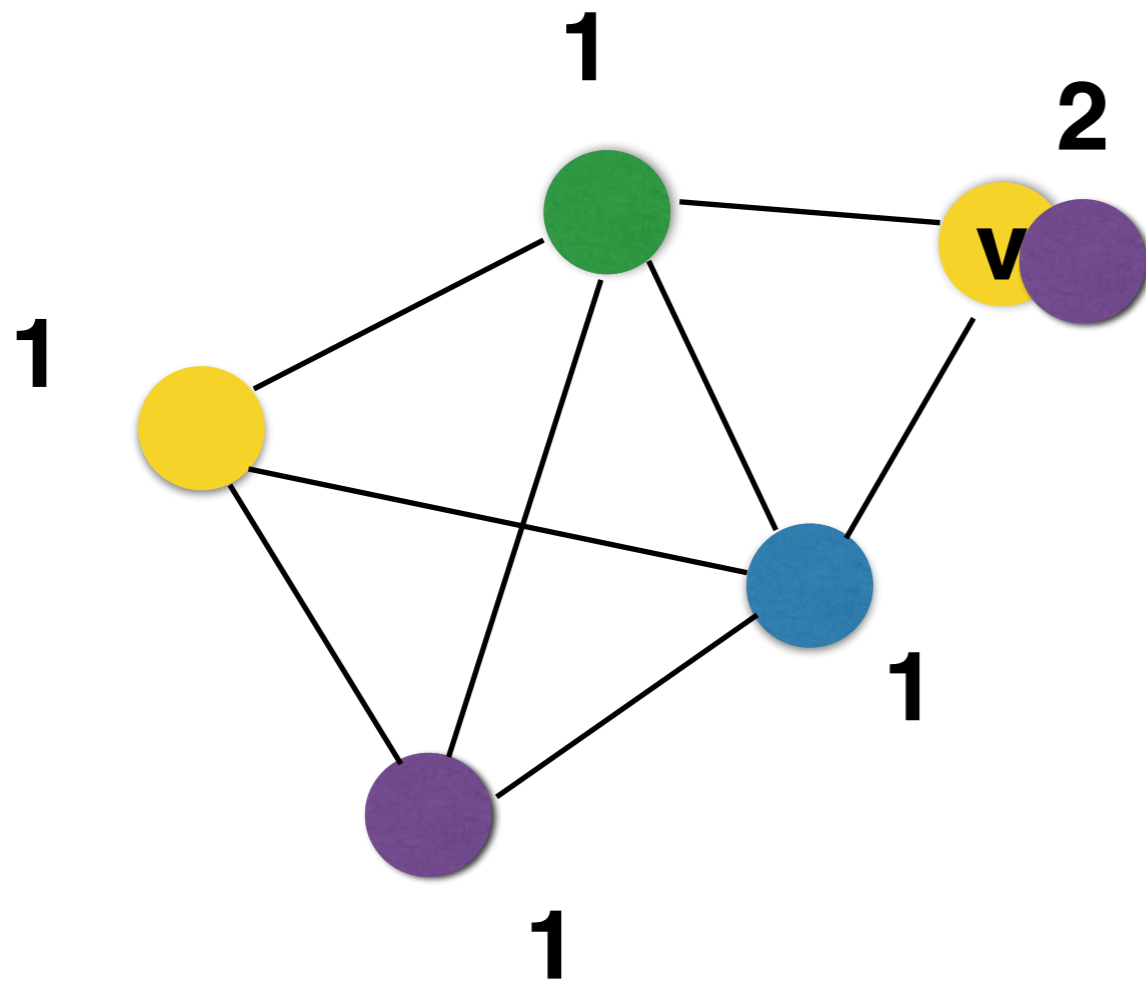
Step 3: Increase demand on v

$$\omega(G, s'_A) = 3$$

$$\chi(G, s'_A) = 3$$

Clique number remains the same
since v not in maximum demand clique
Find colouring using induction

Step 4: Increase demand on colour class to return to original demands

$$\omega(G, s) = 4$$

$$\chi(G, s) = 4$$

Use removed colour class to complete colouring