

Julia Nelson

PS4

I pledge my honor that I have done this work myself.

# Problem 1

a)

$$\text{let } \pi_0 = \{ \overset{G_1}{1, 2, 3, 5, 6, 7, 8, 9}, \overset{G_2}{4} \}$$

| $G_1$ | a          | b |
|-------|------------|---|
| 1     | $G_1, G_1$ |   |
| 2     | $G_1, G_2$ |   |
| 3     | $G_2, G_1$ |   |
| 5     | $G_1, G_1$ |   |
| 6     | $G_2, G_1$ |   |
| 7     | $G_1, G_1$ |   |
| 8     | $G_1, G_2$ |   |
| 9     | $G_1, G_1$ |   |

$$\pi_1 = \{ \overset{G_1}{1, 5, 7, 9}, \overset{G_2}{2, 8}, \overset{G_3}{3, 6}, \overset{G_4}{4} \}$$

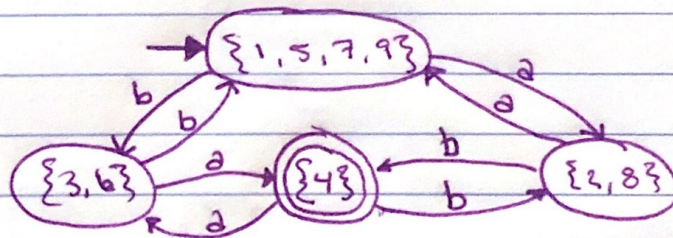
| $G_1$ | a          | b |
|-------|------------|---|
| 1     | $G_2, G_3$ |   |
| 5     | $G_2, G_3$ |   |
| 7     | $G_2, G_3$ |   |
| 9     | $G_2, G_3$ |   |

| $G_2$ | a          | b |
|-------|------------|---|
| 2     | $G_1, G_4$ |   |
| 8     | $G_1, G_4$ |   |

| $G_3$ | a          | b |
|-------|------------|---|
| 3     | $G_4, G_1$ |   |
| 6     | $G_4, G_1$ |   |

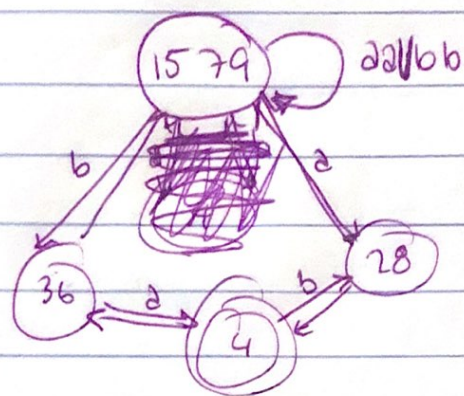
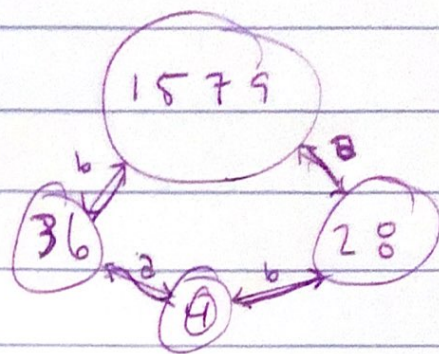
$$\pi_2 = \{ 1, 5, 7, 9 \}, \{ 2, 8 \}, \{ 3, 6 \}, \{ 4 \}$$

$$\pi_1 = \pi_2$$

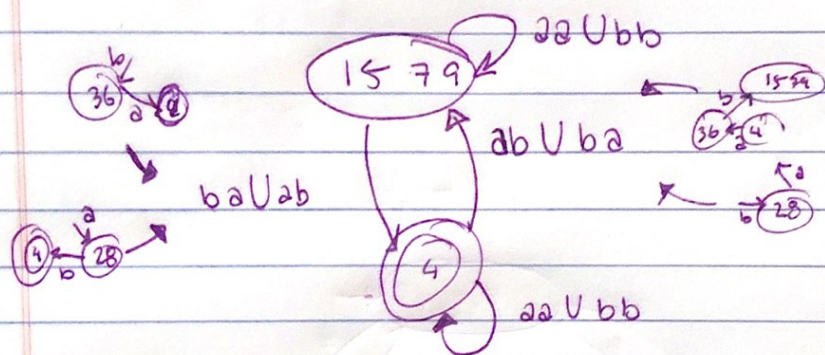


Pledge

b)



$b(a(aa)^*)$



Reg Exp :

$$((aa U bb)^*(ba U ab)(aa U bb)^*(ab U ba))^* \dots (aa U bb)^*(ba U ab)(aa U bb)^*$$