

Homework Quiz # 2 (15 September)

| A | B | C | D | R | S |
|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | X | X |
| | | 0 | 1 | 0 | 0 |
| | | 1 | 0 | 0 | 0 |
| | | 1 | 1 | 0 | 0 |
| 0 | 1 | 0 | 0 | X | X |
| | | 0 | 1 | 0 | 0 |
| | | 1 | 0 | 0 | 1 |
| | | 1 | 1 | 0 | 1 |
| 1 | 0 | 0 | 0 | X | X |
| | | 0 | 1 | 0 | 0 |
| | | 1 | 0 | 0 | 0 |
| | | 1 | 1 | 1 | 0 |
| 1 | 1 | 0 | 0 | X | X |
| | | 0 | 1 | 0 | 0 |
| | | 1 | 0 | 0 | 1 |
| | | 1 | 1 | 0 | 0 |

R) SoP: $R = AB'CD$

| | | | |
|---|---|---|---|
| X | 0 | 0 | X |
| X | 0 | 0 | X |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 |

S) SoP: $S = A'BC + BD'$

| | | | |
|---|---|---|---|
| X | 0 | 0 | X |
| X | 0 | 0 | X |
| 1 | 1 | 0 | 1 |
| 0 | 0 | 0 | 0 |

R) PoS: $R = (A)(B')(C)(D) = AB'CD$

| | | | |
|---|---|---|---|
| X | 0 | 0 | X |
| X | 0 | 0 | X |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 |

S) PoS: $S = (B)(C)(A'+D') = A'BC + BCD'$

| | | | |
|---|---|---|---|
| X | 0 | 0 | X |
| X | 0 | 0 | X |
| 1 | 1 | 0 | 1 |
| 0 | 0 | 0 | 0 |

Minimized sum of products is different from minimized product of sum for 'S' since, in this case, you can take advantage of the don't-cares and make a larger grouping.