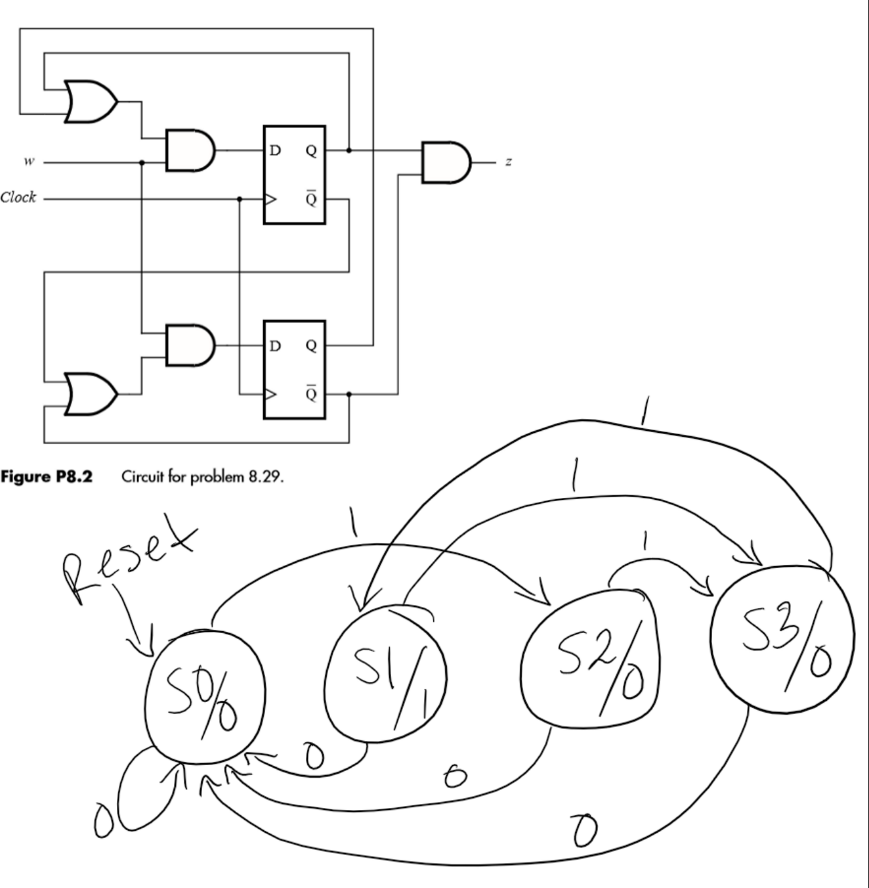
**7.13:**

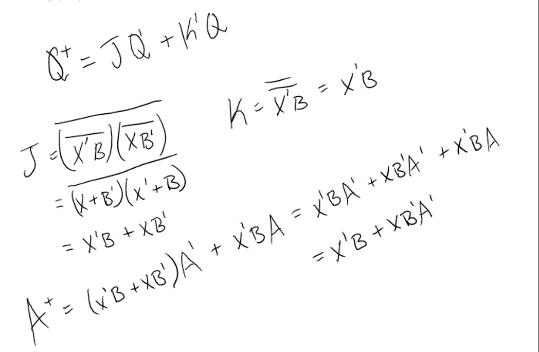
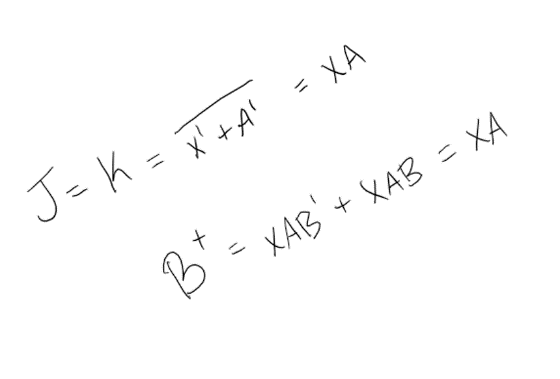
**7.18:** The count starts out at 000, then input into T0 is a 1 so the count is 001. Then output of 1 goes to T1, while input of 1 goes into T0 so the count is then 010. Then the output of 1 goes to T2, while output of 0 goes to T1, while input of 1 goes to T0 so the count is 111. Then back to 000. Therefore, the counting sequence for the counter is 000, 001, 010, 111.

**7.37:**

**7.38:**

**8.29:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Present**  **State** | **Next State** | | **Output** |
| **w = 0** | **w = 1** |
| S0 | S0 | S2 | 0 |
| S1 | S0 | S3 | 1 |
| S2 | S0 | S3 | 0 |
| S3 | S0 | S1 | 0 |

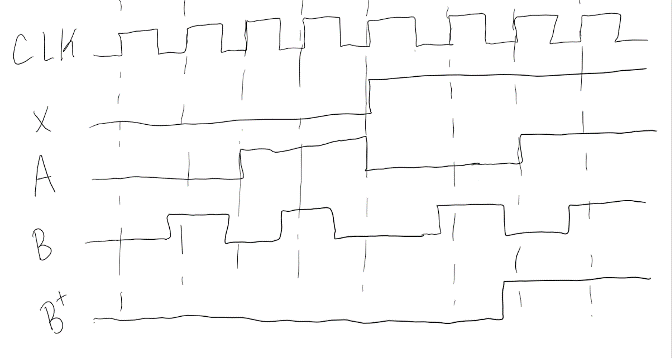
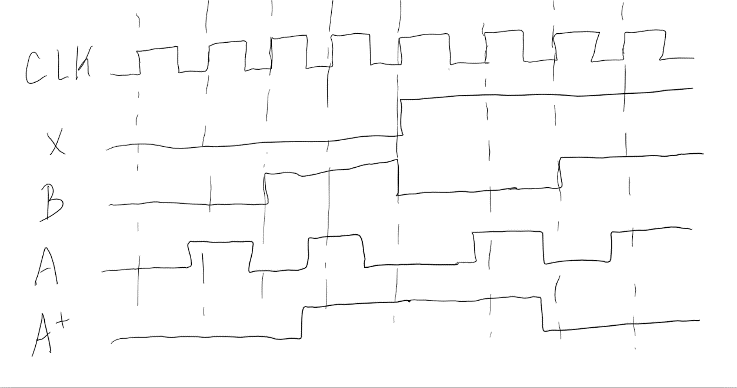
**6.**

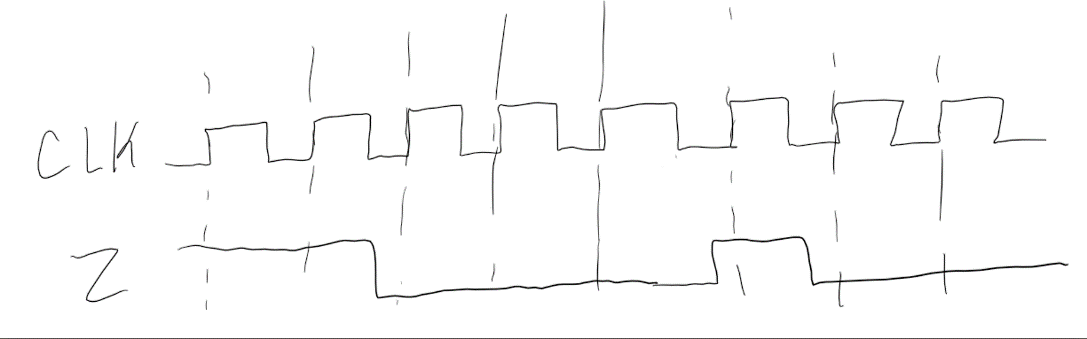
|  |  |  |  |
| --- | --- | --- | --- |
| **Inputs** | | **Current State** | **Next State** |
| **X** | **B** | **A** | **A\*** |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 |
| 0 | 1 | 0 | 1 |
| 0 | 1 | 1 | 1 |
| 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 0 |
| 1 | 1 | 1 | 0 |

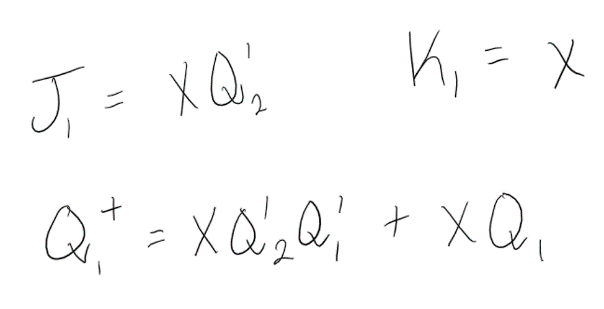
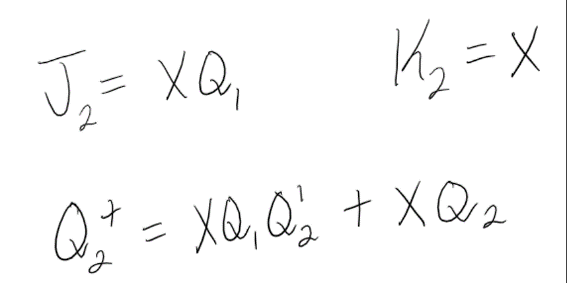
|  |  |  |  |
| --- | --- | --- | --- |
| **Inputs** | | **Current State** | **Next State** |
| **X** | **A** | **B** | **B\*** |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 |
| 0 | 1 | 0 | 0 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 1 |
| 1 | 1 | 1 | 1 |

|  |
| --- |
| **Output** |
| **Z** |
| 1 |
| 1 |
| 0 |
| 0 |
| 0 |
| 1 |
| 0 |
| 0 |

**First JK flip-flop: Second JK flip-flop:**

The circuit is a Moore machine because the output depends on the current state only.



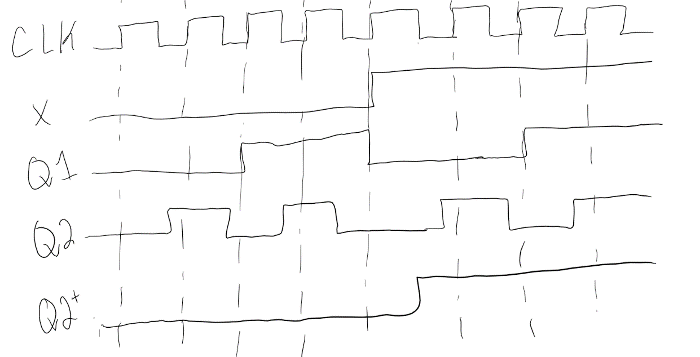
**7.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Inputs** | | **Current State** | **Next State** |
| **X** | **Q2** | **Q1** | **Q1\*** |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 |
| 0 | 1 | 0 | 0 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 1 |
| 1 | 1 | 0 | 0 |
| 1 | 1 | 1 | 1 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Inputs** | | **Current State** | **Next State** |
| **X** | **Q1** | **Q2** | **Q2\*** |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 |
| 0 | 1 | 0 | 0 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 0 |
| 1 | 0 | 1 | 1 |
| 1 | 1 | 0 | 1 |
| 1 | 1 | 1 | 1 |

**First JK flip-flop: Second JK flip-flop:**

|  |
| --- |
| **Output** |
| **Z** |
| 0 |
| 0 |
| 0 |
| 0 |
| 1 |
| 0 |
| 0 |
| 0 |

This circuit is a Mealy machine because the output depends on the current state and input.

