**Problem #1:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Clock Tick* | *Multiplier*  *(shifted)* | *Multiplicand*  *(shifted)* | *Product* | *Least Significant Bit (LSB)* |
| *start* | 1101 | 0000 1111 | 0000 0000 | 1 |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |

**Problem #3:** You may draw the table by hand or use this electronic version. Comments and color coding are not required.

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Comments (optional) | Binary | Decimal |
| 1 |  | ????????  + ????????  ----------------  ???????? | ?  + ?  -----  ? |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |
| 6 |  |  |  |
| 7 |  |  |  |

**Problem #6:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ***Registers after clock*** | | ***Next instruction coming*** | | | | |
| **Clock**  **(0→1)** | ***“rax” reg. (decimal)*** | ***sum***  ***(binary)*** | **Ins. Ptr.**  **(hex)** | ***Inst. Mem.***  ***(hex)*** | ***Next Instruction***  ***(binary)*** | ***lower bits***  ***(binary)*** | ***MUX***  ***select*** |
| Start | 0 | 00000010 | 0 | b802 | 1011100000000010 | 00000010 | 1 |
| 1 |  |  | 1 | 8305 |  |  |  |
| 2 |  |  | 2 | 8307 |  |  |  |
| 3 |  |  | 3 | 0000 |  |  |  |