**Decoding Machine Code (page 123)**

Given 8b0f001316, what is the machine instruction?

Step 1 Convert hex to binary

1000 1011 0000 1111 0000 0000 0001 00112

Step 2 What is the opcode? Remember that they are 6 to 11 bits, so assume 11

1000 1011 000

Looking in the table we see this is add instruction

Step 3 Now that we know the opcode, we find we have an R format instruction.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Opcode | Rm | Shamt | Rn | Rd |
| 1000 1011 000 | 0 1111 | 0000 00 | 00 000 | 1 0011 |
| ADD | X15 |  | X0 | X11 |

So, we have ADD X11, X0, X15

NOTE: Author’s example is incorrect!