

Homework-1

- 1) a) `addi x8, x5, -5`
b) `slli x5, x3, 3`
c) `add x19, x19, x10`
d) `addi x15, x15, 1`
e) `srli x9, x15, 2` (srli for unsigned)
f) `li x12, 24`
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2) a) `ld x6, 160(x5)`

`addi x6, x6, 100`

~~`ld x7, 96(x5)`~~

~~`sd x6, 96(x5)`~~

b) `ld x6, 160(x5)`

`addi x6, x6, 1`

`sd x6, 160(x5)`

c) `ld x6, 40(x5)`

`ld x7, 96(x5)`

~~`ld x8, x6`~~

`sd x7, 40(x5)`

`sd x6, 96(x5)`

d) `li x7, 0xFFFFFFFF` | $M[4] = M[4] \& 0xFFFFFFFF$
`and x6, x6, x7`

e) `ld x6, 16(x5)`

`slli x7, x6, 32` # $x7 = \text{LSB} \rightarrow \text{MSB}$

`srli x8, x6, 32` # $x8 = \text{MSB} \rightarrow \text{LSB}$

`or x6, x7, x8`

`sd x6, 16(x5)`

3) a) 000010111 (16 + 4 + 2 + 1)

b) 11111111

$x = 00000001 \rightarrow 1$

$\neg x = -x - 1$
 $-x = 1 + (\neg x)$

c) Not representable

d) ~~128~~ - 128 \rightarrow 256 - 128 = 128
 10000000

4) a) 11010100 \rightarrow -ve no.

~~$-(4 + 16 + 64) = -84$~~

$-(\neg(11010100) + 1) = -(00101011 + 1)$
 $= -(00101100) = \boxed{-44}$

b) 00101011 \rightarrow +ve no.

$= 1 + 2 + 8 + 32 = \boxed{43}$

c) 11111110 \rightarrow -ve no.

$-(\neg(11111110) + 1) = \cancel{-(01111111)}$
 $= -(00000001 + 1) = -(00000010)$
 $= \boxed{-2}$