

1) 123 to signed & unsigned 32 bit, then in hexadecimal

unsigned

$$2 \overline{) 123}$$

$$\begin{array}{r} 1 \\ 2 \overline{) 61} \end{array}$$

$$\begin{array}{r} 30 \\ 2 \overline{) 61} \end{array}$$

$$\begin{array}{r} 1 \\ 2 \overline{) 30} \end{array}$$

$$\begin{array}{r} 15 \\ 2 \overline{) 30} \end{array}$$

$$\begin{array}{r} 0 \\ 2 \overline{) 15} \end{array}$$

$$\begin{array}{r} 7 \\ 2 \overline{) 15} \end{array}$$

$$\begin{array}{r} 3 \\ 2 \overline{) 7} \end{array}$$

$$\begin{array}{r} 1 \\ 2 \overline{) 3} \end{array}$$

$$\begin{array}{r} 1 \\ 2 \overline{) 1} \end{array}$$

$$\begin{array}{r} 1 \\ 2 \overline{) 1} \end{array}$$

$$\begin{array}{r} 0111 \ 1011 \\ 7 \ D \end{array}$$

Unsigned

00000000 00000000 00000000 01111011<sub>2</sub>

Signed

00000000 00000000 00000000 01111011<sub>2</sub>

unsigned Hexadecimal

7B<sub>16</sub>

Signed Hexadecimal

7B<sub>16</sub>

2) -23 to signed & unsigned 32 bit with hexadecimals

unsigned you do |-23| Signed

00010111

$$\begin{array}{r} 23 \\ -16 \\ \hline 7 \\ -4 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 0010111 \\ + 11101000 \\ \hline 11101001 \end{array}$$

$$\begin{array}{r} 11101000 \\ + \\ 11101001 \end{array}$$

To Hex

1111 = F

$$\begin{array}{r} 0001 \ 0111 \\ 1 \ 7 \end{array}$$

$$\begin{array}{ccccccc} \frac{1111}{F} & \frac{1111}{F} & \frac{1111}{F} & \frac{1111}{F} & \frac{1111}{F} & \frac{1110}{E} & \frac{1001}{9} \end{array}$$

unsigned Binary

00000000 00000000 00000000 00010111<sub>2</sub>

Signed Binary

11111111 11111111 11111111 11101001<sub>2</sub>

Unsigned Hexadecimal

17<sub>16</sub>

Signed Hexadecimal

FFFFFFE9<sub>16</sub>

$$3) \quad g = g - A[3] - 23$$

```
lw $t0, 12($s0) #load
Sub $t1, $s1, $t0 #g - A[3]
addi $s1, $t1, -23 #g - A[3] - 23
```

$$4) \quad A[i+1] = g + A[i] + 1$$

```
lw $t0, 48($s0) #load A[i]
add $t1, $s1, $t0 #g + A[i]
addi $t1, $t1, 1 #g + A[i] + 1
addi $t2, $s2, 1 #i + 1
add $t2, $t2, $t2 #2[i+1]
add $t2, $t2, $t2 #4[i+1]
add $t2, $s0, $t2 #2A[i+1]
sw $t1, 0($t2) #store A[i+1] <- g + A[i] + 1
```