

a)
$$\begin{bmatrix} 1 & 0 & 1 & 0 & 1 & 1 & 0 & 1 \\ 0 & 1 & 0 & 1 & 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 & 0 & 0 & 1 & 1 \end{bmatrix} + 1$$

$$\begin{array}{cccccccc} 0 & 1 & 0 & 1 & 0 & 0 & 1 & 1 \\ & 2^6 & & 2^4 & & & 2^1 & 2^0 \end{array}$$

B) hexadecimal

$$\begin{array}{cc} 1010 & 1101 \\ \downarrow & \downarrow \\ A & D \\ \hline 0XAD \end{array}$$

$64 + 16 + 2 + 1 = 83$

two's complement = -83

28) Convert the hexadecimal num into Binary and decimal

a)
$$\begin{array}{c} 0x3c9a \\ \swarrow \downarrow \searrow \\ [0011 \ 1100 \ 1001 \ 1010] \text{ (half word)} \end{array}$$

B) decimal $0x3c9a$

$3 = 3 \cdot 16^3 = 12288$

$c = 12 \cdot 16^2 = 3072$

$9 = 9 \cdot 16^1 = 144$

$a = 10 \cdot 16^0 = 10$

15514 decimal

29) Convert hexadecimal num $[0x9fde]$ into binary and decimal

a) Binary $0x9fde$

$[1001 \ 1111 \ 1101 \ 1110]$ half word 16 bits $\Rightarrow 0110 \ 0000 \ 0010$

B) decimal $0x9fde$

APPLY 2's complement

$0001 \quad +1$

$\Rightarrow 0110 \ 0000 \ 0010 \ 0010$
 $2^6 \ 2^13 \quad 2^5 \quad 2^1$

$16384 + 8192 + 16 + 2 =$

-24594