Base Conversion

$1_{(10)} \Rightarrow$ base 2 $\Rightarrow 1 \cdot 2^0 = 1_{(10)} \Rightarrow \quad 1_{(2)}$

$1_{(10)} \Rightarrow$ base 8 $\Rightarrow 1 \cdot 8^0 = 1_{(10)} \Rightarrow \quad 1_{(8)}$

$1_{(10)} \Rightarrow$ base 16 $\Rightarrow 1 \cdot 16^0 = 1_{(10)} \Rightarrow \quad 1_{(16)}$

$10_{(10)} \Rightarrow$ base 2 $\Rightarrow 1 \cdot 2^4 + 1 \cdot 2^1 + 0 = 1010_{(2)}$

$10_{(10)} \Rightarrow$ base 8 $\Rightarrow 1 \cdot 8^1 + 2 \cdot 8^0 = 12_{(8)}$

$10_{(10)} \Rightarrow$ base 16 $\Rightarrow 10 \cdot 16^0 = A_{(16)}$

$42_{(10)} \Rightarrow$ base 2 $\Rightarrow 1 \cdot 2^5 + 0 \cdot 2^4 + 1 \cdot 2^3 + 0 \cdot 2^2 + 1 \cdot 2^1 + 0 \cdot 2^0 = 101010_{(2)}$

$42_{(10)} \Rightarrow$ base 8 $\Rightarrow 5 \cdot 8^1 + 2 \cdot 8^0 = 52_{(8)}$

$42_{(10)} \Rightarrow$ base 16 $\Rightarrow 2 \cdot 16^1 + 10 \cdot 16^0 = 2A_{(16)}$

$255_{(10)} \Rightarrow$ base 2 $\Rightarrow 1 \cdot 2^7 + 1 \cdot 2^6 + 1 \cdot 2^5 + 1 \cdot 2^4 + 1 \cdot 2^3 + 1 \cdot 2^2 + 1 \cdot 2^1 + 1 \cdot 2^0 = 11111111_{(2)}$

~~$255_{(10)} \Rightarrow$ base 8 $\Rightarrow 3 \cdot 8^3 + 0 \cdot 8^1 + 3 \cdot 8^0 = 703_{(8)}$~~

$255_{(10)} \Rightarrow$ base 8 $\Rightarrow 3 \cdot 8^2 + 7 \cdot 8^1 + 7 \cdot 8^0 = 377_{(8)}$

$255_{(10)} \Rightarrow$ base 16 $\Rightarrow 15 \cdot 16^1 + 15 \cdot 16^0 = FF_{(16)}$

$F_{(16)} \Rightarrow$ base 10 $\Rightarrow 15 \cdot 10^0 = 15_{(10)}$

$F_{(16)} \Rightarrow$ base 8 $\Rightarrow 1 \cdot 8^1 + 7 \cdot 8^0 = 17_{(8)}$

$F_{(16)} \Rightarrow$ base 2 $\Rightarrow 1 \cdot 2^3 + 1 \cdot 2^2 + 1 \cdot 2^1 + 1 \cdot 2^0 = 1111_{(2)}$

$DF_{(16)} \Rightarrow$ base 10 $\Rightarrow 13 \cdot 10^1 + 15 \cdot 10^0 = 145_{(10)}$

$DF_{(16)} \Rightarrow$ base 8 $\Rightarrow 2 \cdot 8^2 + 2 \cdot 8^1 + 1 \cdot 8^0 = 221_{(8)}$

$DF_{(16)} \Rightarrow$ base 2 $\Rightarrow 1 \cdot 2^7 + 1 \cdot 2^6 + 0 \cdot 2^5 + 1 \cdot 2^4 + 1 \cdot 2^3 + 1 \cdot 2^2 + 1 \cdot 2^1 + 1 \cdot 2^0$

$= 11011111_{(2)}$

Base Conversions (Continued)

$81_{(16)} \rightarrow$ base 10 $\rightarrow 9 \cdot 10^1 + 6 \cdot 10^0 = 96_{(10)}$

$81_{(16)} \rightarrow$ base 8 $\rightarrow 1 \cdot 8^2 + 4 \cdot 8^1 + 0 \cdot 8^0 = 140_{(8)}$

$81_{(16)} \rightarrow$ base 2 $\rightarrow 1 \cdot 2^7 + 0 \cdot 2^6 + 0 \cdot 2^5 + 0 \cdot 2^4 + 0 \cdot 2^3 + 0 \cdot 2^2 + 0 \cdot 2^1 + 0 \cdot 2^0$

$$= 1000000_{(2)}$$

$04_{(16)} \rightarrow$ base 10 $\rightarrow 4 \cdot 10^0 = 4_{(10)}$

$04_{(16)} \rightarrow$ base 8 $\rightarrow$ ~~100~~ $4 \cdot 8^0 = 4_{(8)}$

$04_{(16)} \rightarrow$ base 2 $\rightarrow 1 \cdot 2^2 + 0 \cdot 2^1 + 0 \cdot 2^0 = 0100_{(2)}$

$10010011_{(2)} \rightarrow$ base 10 $\rightarrow 2 \cdot 10^2 + 9 \cdot 10^1 + 1 \cdot 10^0 = 291_{(10)}$

$10010011_{(2)} \rightarrow$ base 8 $\rightarrow 4 \cdot 8^2 + 4 \cdot 8^1 + 3 \cdot 8^0 = 443_{(8)}$

$10010011_{(2)} \rightarrow$ base 16 $\rightarrow 1 \cdot 16^2 + 2 \cdot 16^1 + 3 \cdot 16^0 = 123_{(16)}$

$00111111_{(2)} \rightarrow$ base 10 $\rightarrow 6 \cdot 10^1 + 3 \cdot 10^0 = 63_{(10)}$

$00111111_{(2)} \rightarrow$ base 8 $\rightarrow 7 \cdot 8^1 + 7 \cdot 8^0 = 77_{(8)}$

$00111111_{(2)} \rightarrow$ base 16 $\rightarrow 3 \cdot 16^1 + 15 \cdot 16^0 = 3F_{(16)}$