

$x$	$2^x$	$10^x$
0	1	1
1	2	10
2	4	100
3	8	1,000
4	16	
5	32	
6	64	
7	128	
8	256	

$324 = 3(10^2) + 2(10^1) + 4(10^0)$   
 in decimal (i.e.,  
 base 10).

$$\begin{aligned}
 324 &= 1(2^8) + 0(2^7) + 1(2^6) \\
 &\quad + 0(2^5) + 0(2^4) + 0(2^3) \\
 &\quad + 1(2^2) + 0(2^1) + 0(2^0)
 \end{aligned}$$

$\Rightarrow$  101000100 in  
 binary (i.e., base 2)

$$\begin{array}{r}
 \overset{1}{3} \overset{1}{2} 4 \\
 + \quad 78 \\
 \hline
 402
 \end{array}$$

$$\begin{array}{r}
 \overset{1}{1} \overset{0}{0} \overset{1}{0} \overset{0}{0} \overset{0}{0} \overset{1}{1} 00 \\
 + \quad \quad \quad 1001110 \\
 \hline
 110010010
 \end{array}$$

$$\begin{aligned}
 402 &= 1(256) + 1(128) + 0(64) + 0(32) \\
 &\quad + 1(16) + 0(8) + 0(4) + 1(2) + 0(1)
 \end{aligned}$$

$$\begin{array}{r}
 \overset{2}{\cancel{3}} \overset{11}{\cancel{2}} \overset{1}{\cancel{4}} \\
 \phantom{\cancel{3}} 78 \\
 \hline
 246
 \end{array}$$

$\overset{0}{\cancel{1}}$	$\overset{1}{\cancel{10}}$	$\overset{10}{\cancel{1}}$	$\overset{1}{\cancel{10}}$	$\overset{1}{\cancel{10}}$	$\overset{1}{\cancel{10}}$	$\overset{10}{\cancel{1}}$	$10$	$0$
$\overset{1}{\phantom{\cancel{1}}}$	$0$	$0$	$\overset{1}{\phantom{\cancel{1}}}$	$\overset{1}{\phantom{\cancel{1}}}$	$\overset{1}{\phantom{\cancel{1}}}$	$\overset{1}{\phantom{\cancel{1}}}$	$\overset{1}{\phantom{\cancel{1}}}$	$0$
$\overset{1}{\phantom{\cancel{1}}}$	$\overset{1}{\phantom{\cancel{1}}}$	$\overset{1}{\phantom{\cancel{1}}}$	$\overset{1}{\phantom{\cancel{1}}}$	$0$	$\overset{1}{\phantom{\cancel{1}}}$	$\overset{1}{\phantom{\cancel{1}}}$	$0$	$0$

$$\begin{array}{r}
 213 \\
 \times 14 \\
 \hline
 852 \\
 2130 \\
 \hline
 2982
 \end{array}$$

$$\begin{array}{r}
 11010101 \\
 \times 1110 \\
 \hline
 00000000 \\
 110101010 \\
 1101010100 \\
 11010101000 \\
 \hline
 101110100110
 \end{array}$$

$$\begin{array}{r} 5 \\ 12 \overline{) 68} \\ \underline{60} \\ 8 \end{array}$$

$$\begin{array}{r} 101 \\ 1100 \overline{) 1000100} \\ \underline{1100} \\ 0010100 \\ \underline{1100} \\ 1000 \end{array}$$