

Decimal or Base 10

0

$$\begin{aligned} &= 0 + 0 + 0 + 0 + 0 \\ &= 0 * 16 + 0 * 8 + 0 * 4 + 0 * 2 + 0 * 1 \\ &= 0 * 2^4 + 0 * 2^3 + 0 * 2^2 + 0 * 2^1 + 0 * 2^0 \end{aligned}$$

## Binary or Base 2

$$= \begin{matrix} 0 & 0 & 0 & 0 & 0 \\ \blacksquare & \blacksquare & \blacksquare & \blacksquare & \blacksquare \end{matrix}$$

Decimal or Base 10

1

$$\begin{aligned} &= 0 + 0 + 0 + 0 + 1 \\ &= 0 * 16 + 0 * 8 + 0 * 4 + 0 * 2 + 1 * 1 \\ &= 0 * 2^4 + 0 * 2^3 + 0 * 2^2 + 0 * 2^1 + 1 * 2^0 \end{aligned}$$

## Binary or Base 2

$$= \begin{matrix} 0 & 0 & 0 & 0 & 1 \\ \blacksquare & \blacksquare & \blacksquare & \blacksquare & \blacksquare \end{matrix}$$

## Decimal or Base 10

2

$$\begin{aligned} &= 0 + 0 + 0 + 2 + 0 \\ &= 0 * 16 + 0 * 8 + 0 * 4 + 1 * 2 + 0 * 1 \\ &= 0 * 2^4 + 0 * 2^3 + 0 * 2^2 + 1 * 2^1 + 0 * 2^0 \end{aligned}$$

## Binary or Base 2

$$= \begin{matrix} 0 & 0 & 0 & 1 & 0 \\ \blacksquare & \blacksquare & \blacksquare & \blacksquare & \blacksquare \end{matrix}$$

## Decimal or Base 10

3

$$\begin{aligned} &= 0 + 0 + 0 + 2 + 1 \\ &= 0 * 16 + 0 * 8 + 0 * 4 + 1 * 2 + 1 * 1 \\ &= 0 * 2^4 + 0 * 2^3 + 0 * 2^2 + 1 * 2^1 + 1 * 2^0 \end{aligned}$$

## Binary or Base 2

=      0            0            0            1            1

        ■            ■            ■            ■            ■

Decimal or Base 10

4

$$\begin{aligned} &= 0 + 0 + 4 + 0 + 0 \\ &= 0 * 16 + 0 * 8 + 1 * 4 + 0 * 2 + 0 * 1 \\ &= 0 * 2^4 + 0 * 2^3 + 1 * 2^2 + 0 * 2^1 + 0 * 2^0 \end{aligned}$$

## Binary or Base 2

=      0            0            1            0            0

        ■            ■            ■            ■            ■

Decimal or Base 10

5

$$\begin{aligned} &= 0 + 0 + 4 + 0 + 1 \\ &= 0 * 16 + 0 * 8 + 1 * 4 + 0 * 2 + 1 * 1 \\ &= 0 * 2^4 + 0 * 2^3 + 1 * 2^2 + 0 * 2^1 + 1 * 2^0 \end{aligned}$$

## Binary or Base 2

$$= \begin{matrix} 0 & 0 & 1 & 0 & 1 \\ \blacksquare & \blacksquare & \blacksquare & \blacksquare & \blacksquare \end{matrix}$$


Decimal or Base 10

6

$$\begin{aligned} &= 0 + 0 + 4 + 2 + 0 \\ &= 0 * 16 + 0 * 8 + 1 * 4 + 1 * 2 + 0 * 1 \\ &= 0 * 2^4 + 0 * 2^3 + 1 * 2^2 + 1 * 2^1 + 0 * 2^0 \end{aligned}$$

## Binary or Base 2

=      0                  0                  1                  1                  0



Decimal or Base 10

7

$$\begin{aligned} &= 0 + 0 + 4 + 2 + 1 \\ &= 0 * 16 + 0 * 8 + 1 * 4 + 1 * 2 + 1 * 1 \\ &= 0 * 2^4 + 0 * 2^3 + 1 * 2^2 + 1 * 2^1 + 1 * 2^0 \end{aligned}$$

## Binary or Base 2

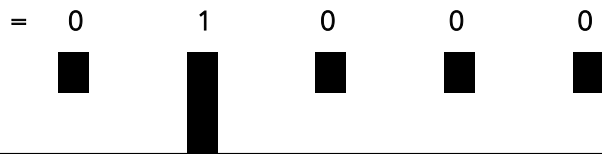
= 0 0 1 1 1

Decimal or Base 10

8

$$\begin{aligned} &= 0 + 8 + 0 + 0 + 0 \\ &= 0 * 16 + 1 * 8 + 0 * 4 + 0 * 2 + 0 * 1 \\ &= 0 * 2^4 + 1 * 2^3 + 0 * 2^2 + 0 * 2^1 + 0 * 2^0 \end{aligned}$$

## Binary or Base 2

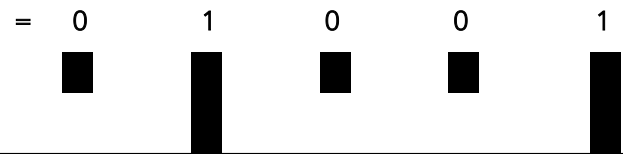


Decimal or Base 10

9

$$\begin{aligned} &= 0 + 8 + 0 + 0 + 1 \\ &= 0 * 16 + 1 * 8 + 0 * 4 + 0 * 2 + 1 * 1 \\ &= 0 * 2^4 + 1 * 2^3 + 0 * 2^2 + 0 * 2^1 + 1 * 2^0 \end{aligned}$$

## Binary or Base 2

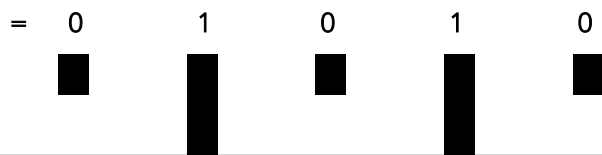


Decimal or Base 10

10

$$\begin{aligned} &= 0 + 8 + 0 + 2 + 0 \\ &= 0 * 16 + 1 * 8 + 0 * 4 + 1 * 2 + 0 * 1 \\ &= 0 * 2^4 + 1 * 2^3 + 0 * 2^2 + 1 * 2^1 + 0 * 2^0 \end{aligned}$$

## Binary or Base 2

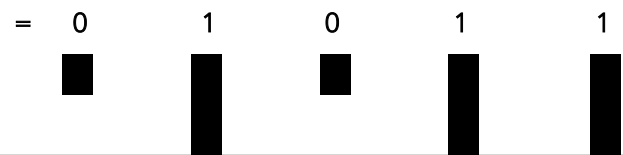


Decimal or Base 10

11

$$\begin{aligned} &= 0 + 8 + 0 + 2 + 1 \\ &= 0 * 16 + 1 * 8 + 0 * 4 + 1 * 2 + 1 * 1 \\ &= 0 * 2^4 + 1 * 2^3 + 0 * 2^2 + 1 * 2^1 + 1 * 2^0 \end{aligned}$$

## Binary or Base 2

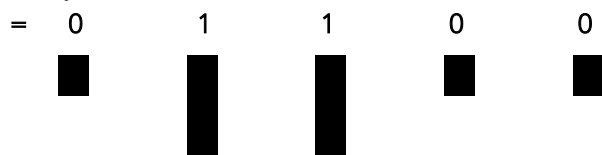


Decimal or Base 10

12

$$\begin{aligned} &= 0 + 8 + 4 + 0 + 0 \\ &= 0 * 16 + 1 * 8 + 1 * 4 + 0 * 2 + 0 * 1 \\ &= 0 * 2^4 + 1 * 2^3 + 1 * 2^2 + 0 * 2^1 + 0 * 2^0 \end{aligned}$$

## Binary or Base 2

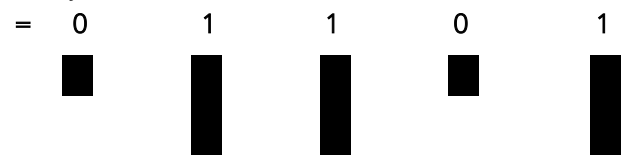


Decimal or Base 10

13

$$\begin{aligned} &= 0 + 8 + 4 + 0 + 1 \\ &= 0 * 16 + 1 * 8 + 1 * 4 + 0 * 2 + 1 * 1 \\ &= 0 * 2^4 + 1 * 2^3 + 1 * 2^2 + 0 * 2^1 + 1 * 2^0 \end{aligned}$$

## Binary or Base 2

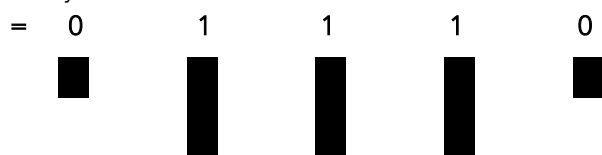


Decimal or Base 10

14

$$\begin{aligned}
 &= 0 + 8 + 4 + 2 + 0 \\
 &= 0 * 16 + 1 * 8 + 1 * 4 + 1 * 2 + 0 * 1 \\
 &= 0 * 2^4 + 1 * 2^3 + 1 * 2^2 + 1 * 2^1 + 0 * 2^0
 \end{aligned}$$

## Binary or Base 2

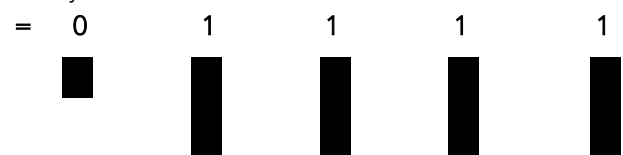


Decimal or Base 10

15

$$\begin{aligned} &= 0 + 8 + 4 + 2 + 1 \\ &= 0 * 16 + 1 * 8 + 1 * 4 + 1 * 2 + 1 * 1 \\ &= 0 * 2^4 + 1 * 2^3 + 1 * 2^2 + 1 * 2^1 + 1 * 2^0 \end{aligned}$$

## Binary or Base 2



Decimal or Base 10

16

$$\begin{aligned} &= 16 + 0 + 0 + 0 + 0 \\ &= 1 * 16 + 0 * 8 + 0 * 4 + 0 * 2 + 0 * 1 \\ &= 1 * 2^4 + 0 * 2^3 + 0 * 2^2 + 0 * 2^1 + 0 * 2^0 \end{aligned}$$

Binary or Base 2

$$= \begin{array}{ccccc} 1 & 0 & 0 & 0 & 0 \\ \text{█} & \text{■} & \text{■} & \text{■} & \text{■} \end{array}$$

Decimal or Base 10

17

$$\begin{aligned} &= 16 + 0 + 0 + 0 + 1 \\ &= 1 * 16 + 0 * 8 + 0 * 4 + 0 * 2 + 1 * 1 \\ &= 1 * 2^4 + 0 * 2^3 + 0 * 2^2 + 0 * 2^1 + 1 * 2^0 \end{aligned}$$

Binary or Base 2

$$= \begin{array}{ccccc} 1 & 0 & 0 & 0 & 1 \\ \text{█} & \text{■} & \text{■} & \text{■} & \text{█} \end{array}$$

Decimal or Base 10

18

$$\begin{aligned} &= 16 + 0 + 0 + 2 + 0 \\ &= 1 * 16 + 0 * 8 + 0 * 4 + 1 * 2 + 0 * 1 \\ &= 1 * 2^4 + 0 * 2^3 + 0 * 2^2 + 1 * 2^1 + 0 * 2^0 \end{aligned}$$

Binary or Base 2

$$= \begin{array}{ccccc} 1 & 0 & 0 & 1 & 0 \\ \text{█} & \text{■} & \text{■} & \text{█} & \text{■} \end{array}$$

Decimal or Base 10

19

$$\begin{aligned} &= 16 + 0 + 0 + 2 + 1 \\ &= 1 * 16 + 0 * 8 + 0 * 4 + 1 * 2 + 1 * 1 \\ &= 1 * 2^4 + 0 * 2^3 + 0 * 2^2 + 1 * 2^1 + 1 * 2^0 \end{aligned}$$

Binary or Base 2

$$= \begin{array}{ccccc} 1 & 0 & 0 & 1 & 1 \\ \text{█} & \text{■} & \text{■} & \text{█} & \text{█} \end{array}$$

Decimal or Base 10

20

$$\begin{aligned} &= 16 + 0 + 4 + 0 + 0 \\ &= 1 * 16 + 0 * 8 + 1 * 4 + 0 * 2 + 0 * 1 \\ &= 1 * 2^4 + 0 * 2^3 + 1 * 2^2 + 0 * 2^1 + 0 * 2^0 \end{aligned}$$

Binary or Base 2

$$= \begin{array}{ccccc} 1 & 0 & 1 & 0 & 0 \\ \text{█} & \text{■} & \text{█} & \text{■} & \text{■} \end{array}$$

Decimal or Base 10

21

$$\begin{aligned} &= 16 + 0 + 4 + 0 + 1 \\ &= 1 * 16 + 0 * 8 + 1 * 4 + 0 * 2 + 1 * 1 \\ &= 1 * 2^4 + 0 * 2^3 + 1 * 2^2 + 0 * 2^1 + 1 * 2^0 \end{aligned}$$

Binary or Base 2

$$= \begin{array}{ccccc} 1 & 0 & 1 & 0 & 1 \\ \text{█} & \text{■} & \text{█} & \text{■} & \text{█} \end{array}$$

Decimal or Base 10

22

$$\begin{aligned} &= 16 + 0 + 4 + 2 + 0 \\ &= 1 * 16 + 0 * 8 + 1 * 4 + 1 * 2 + 0 * 1 \\ &= 1 * 2^4 + 0 * 2^3 + 1 * 2^2 + 1 * 2^1 + 0 * 2^0 \end{aligned}$$

Binary or Base 2

$$= \begin{array}{ccccc} 1 & 0 & 1 & 1 & 0 \\ \text{█} & \text{■} & \text{█} & \text{█} & \text{■} \end{array}$$

Decimal or Base 10

23

$$\begin{aligned} &= 16 + 0 + 4 + 2 + 1 \\ &= 1 * 16 + 0 * 8 + 1 * 4 + 1 * 2 + 1 * 1 \\ &= 1 * 2^4 + 0 * 2^3 + 1 * 2^2 + 1 * 2^1 + 1 * 2^0 \end{aligned}$$

Binary or Base 2

$$= \begin{array}{ccccc} 1 & 0 & 1 & 1 & 1 \\ \text{█} & \text{■} & \text{█} & \text{█} & \text{█} \end{array}$$

---

Decimal or Base 10

24

$$\begin{aligned} &= 16 + 8 + 0 + 0 + 0 \\ &= 1 * 16 + 1 * 8 + 0 * 4 + 0 * 2 + 0 * 1 \\ &= 1 * 2^4 + 1 * 2^3 + 0 * 2^2 + 0 * 2^1 + 0 * 2^0 \end{aligned}$$

## Binary or Base 2

= 1 1 0 0 0

Decimal or Base 10

25

$$\begin{aligned} &= 16 + 8 + 0 + 0 + 1 \\ &= 1 * 16 + 1 * 8 + 0 * 4 + 0 * 2 + 1 * 1 \\ &= 1 * 2^4 + 1 * 2^3 + 0 * 2^2 + 0 * 2^1 + 1 * 2^0 \end{aligned}$$

## Binary or Base 2

= 1 1 0 0 1






### Decimal or Base 10

26

$$\begin{aligned} &= 16 + 8 + 0 + 2 + 0 \\ &= 1 * 16 + 1 * 8 + 0 * 4 + 1 * 2 + 0 * 1 \\ &= 1 * 2^4 + 1 * 2^3 + 0 * 2^2 + 1 * 2^1 + 0 * 2^0 \end{aligned}$$

## Binary or Base 2

=

1	1	0	1	0
				

### Decimal or Base 10

27

$$\begin{aligned} &= 16 + 8 + 0 + 2 + 1 \\ &= 1 * 16 + 1 * 8 + 0 * 4 + 1 * 2 + 1 * 1 \\ &= 1 * 2^4 + 1 * 2^3 + 0 * 2^2 + 1 * 2^1 + 1 * 2^0 \end{aligned}$$

## Binary or Base 2

= 1 1 0 1 1

Decimal or Base 10

28

$$\begin{aligned} &= 16 + 8 + 4 + 0 + 0 \\ &= 1 * 16 + 1 * 8 + 1 * 4 + 0 * 2 + 0 * 1 \\ &= 1 * 2^4 + 1 * 2^3 + 1 * 2^2 + 0 * 2^1 + 0 * 2^0 \end{aligned}$$

## Binary or Base 2

= 1 1 1 0 0

Decimal or Base 10

29

$$\begin{aligned} &= 16 + 8 + 4 + 0 + 1 \\ &= 1 * 16 + 1 * 8 + 1 * 4 + 0 * 2 + 1 * 1 \\ &= 1 * 2^4 + 1 * 2^3 + 1 * 2^2 + 0 * 2^1 + 1 * 2^0 \end{aligned}$$

## Binary or Base 2

=  $\begin{bmatrix} 1 & 1 & 1 & 0 & 1 \end{bmatrix}$

Decimal or Base 10

30

$$\begin{aligned} &= 16 + 8 + 4 + 2 + 0 \\ &= 1 * 16 + 1 * 8 + 1 * 4 + 1 * 2 + 0 * 1 \\ &= 1 * 2^4 + 1 * 2^3 + 1 * 2^2 + 1 * 2^1 + 0 * 2^0 \end{aligned}$$

## Binary or Base 2

$$= \begin{matrix} 1 & 1 & 1 & 1 & 0 \\ \blacksquare & \blacksquare & \blacksquare & \blacksquare & \blacksquare \end{matrix}$$

## Decimal or Base 10

31

$$\begin{aligned} &= 16 + 8 + 4 + 2 + 1 \\ &= 1 * 16 + 1 * 8 + 1 * 4 + 1 * 2 + 1 * 1 \\ &= 1 * 2^4 + 1 * 2^3 + 1 * 2^2 + 1 * 2^1 + 1 * 2^0 \end{aligned}$$

## Binary or Base 2

$$= \begin{pmatrix} 1 & 1 & 1 & 1 & 1 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix}$$