# Bài 2: Tính địa chỉ đường mạng, khoảng IP khả dụng và địa chỉ broadcast của (Từ các ***Host*** dưới đây):

**a. 192.168.100.100 / 25**

Đổi 192.168.100.100 thành nhị phân

1100 0000 . 1010 1000 . 0110 0100 . 0110 0100

Đổi 25 bit thành nhị phân

1111 1111 . 1111 1111 . 1111 1111 . 1000 0000

Thực hiện phép AND:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **1** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

Kết quả địa chỉ đường mạng: 192.168.100.0

Vậy địa chỉ mạng thuộc lớp C, suy ra default mask là 255.255.255.0, do đó ta mượn 2 bit cho phần net ID

Số subnet là: 22=4

số host/subnet

Khoảng IP khả dụng là từ 192.168.100.2 đến 192.168.100.254

Địa chỉ Broadcast: 192.168.100.255

**b. 192.111.121.20 / 26**

Đổi 192.111.121.20 thành nhị phân

1100 0000 . 0110 1111 . ‭0111 1001‬ . ‭0001 0100‬

Đổi 26 bit thành nhị phân

1111 1111 . 1111 1111 . 1111 1111 . 0000 0010

Thực hiện phép AND:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| **1** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **1** | **1** | **1** | **0** | **1** | **1** | **1** | **1** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

Kết quả Địa chỉ đường mạng: 192.111.121.0

Vậy địa chỉ mạng thuộc lớp C

Khoảng IP khả dụng là từ 192.111.121.2 đến 192.111.121.254

Địa chỉ Broadcast: 192.111.121.255

**c. 172.134.167.1 / 18**

Đổi 172.134.167.1 thành nhị phân

‭1010 1100‬ . ‭1000 0110‬ . ‭‭1010 0111‬‬ . ‭0000 0001

Đổi 18 bit thành nhị phân

1111 1111 . 1111 1111 . 1100 0000 . 0000 0000

Thực hiện phép AND:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

Kết quả Địa chỉ đường mạng: 172.134.128.0

Vậy địa chỉ mạng thuộc lớp B

Khoảng IP khả dụng là từ 172.134.128.2 đến 172.134.128.254

Địa chỉ Broadcast: 172.134.128.255

**d. 172.224.248.1 / 20**

Đổi 172.224.248.1 thành nhị phân

‭1010 1100‬ . ‭‭1110 0000‬ . ‭‭‭1111 1000‬ . ‭0000 0001

Đổi 20 bit thành nhị phân

1111 1111 . 1111 1111 . 1111 0000 . 0000 0000

Thực hiện phép AND:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

Kết quả Địa chỉ đường mạng: 172.134.128.0

Khoảng IP khả dụng là từ 172.134.128.2 đến 172.134.128.254

Địa chỉ Broadcast: 172.134.128.255

**e. 10.110.120.1 / 10**

Đổi 10.110.120.1 thành nhị phân

‭1010 1100‬ . ‭1000 0110‬ . ‭‭1010 0111‬‬ . ‭0000 0001

Đổi 10 bit thành nhị phân

1111 1111 . 1111 1111 . 1100 0000 . 0000 0000

Thực hiện phép AND:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

Kết quả Địa chỉ đường mạng: 172.134.128.0

Khoảng IP khả dụng là từ 172.134.128.2 đến 172.134.128.254

Địa chỉ Broadcast: 172.134.128.255

**f. 10.127.64.1 / 12**

Đổi **10.127.64.1** thành nhị phân

‭1010 1100‬ . ‭1000 0110‬ . ‭‭1010 0111‬‬ . ‭0000 0001

Đổi 12 bit thành nhị phân

1111 1111 . 1111 1111 . 1100 0000 . 0000 0000

Thực hiện phép AND:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| **1** | **0** | **1** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

Kết quả Địa chỉ đường mạng: 172.134.128.0

Khoảng IP khả dụng là từ 172.134.128.2 đến 172.134.128.254

Địa chỉ Broadcast: 172.134.128.255