

- 10.0.0.3 is masked with 255.0.0.0.

IP address	00001010.00000000.00000000.00000011
Subnet mask	11111111.00000000.00000000.00000000
Masked result	00001010.00000000.00000000.00000000 (= 10.0.0.0)

- 159.159.3.3 is masked with 255.0.0.0.

IP address	10011111.10011111.00000011.00000011
Subnet mask	11111111.00000000.00000000.00000000
Masked result	10011111.00000000.00000000.00000000 (= 159.0.0.0)

- From the source host's (i.e. host 10.0.0.3) point of view, the host 159.159.3.3 is located on a remote network since the two masked results do not match. The "ping" request with destination MAC address of a suitable router and destination IP address of the host 159.159.3.3 is sent.

5.5 Possible Values in an Octet of a Subnet Mask

Since it is a rule that all the "1₂" in a subnet mask must be on the left side and all the "0₂" in a subnet mask must be on the right side, the following are all the combinations that can exist in an octet of a subnet mask:

<u>Binary Number</u>	<u>Decimal Number</u>	<u>Binary Number</u>	<u>Decimal Number</u>
00000000	0	11111000	248
10000000	128	11111100	252
11000000	192	11111110	254
11100000	224	11111111	255
11110000	240		

For example, the following shows a subnet mask of 255.255.248.0:

11111111	11111111	11111000	00000000
↕	↕	↕	↕
255	255	248	0

5.6 Subnetting (子網路化)

Important: It is a rule that all of the following cases do not implement subnetting: