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TRAINING

SUBNETTING CHEAT SHEET

KEY FORMULAS

Subnets = 2^n (n = borrowed bits)

Hosts = 2^h - 2 (h = host bits)

Increment = 2^h

Magic # = 256 - mask value

5-STEP PROCESS

1. Count subnets & hosts needed
2. Find bits to borrow: 2^n ≥ subnets
3. Check host bits: 2^h - 2 ≥ hosts
4. New mask = original + borrowed
5. Calculate ranges with increment

IP CLASSES

Class	Range	Default
A	1-126	/8
B	128-191	/16
C	192-223	/24

SUBNET MASK REFERENCE TABLE

CIDR	Subnet Mask	Hosts	Increment	Binary (Last Octet)	Subnets from /24
/24	255.255.255.0	254	256	00000000	1
/25	255.255.255.128	126	128	10000000	2
/26	255.255.255.192	62	64	11000000	4
/27	255.255.255.224	30	32	11100000	8
/28	255.255.255.240	14	16	11110000	16
/29	255.255.255.248	6	8	11111000	32
/30	255.255.255.252	2	4	11111100	64

QUICK EXAMPLE

192.168.1.0/24 → 4 subnets
• Need 2 bits ($2^2 = 4$)
• New mask: /26
• Increment: 64
• Subnets:
- 192.168.1.0/26
- 192.168.1.64/26
- 192.168.1.128/26
- 192.168.1.192/26

BINARY VALUES

Bit Position	8	7	6	5	4	3	2	1
Decimal Value	128	64	32	16	8	4	2	1

Examples:
/25 = 128 | /26 = 192 | /27 = 224

PRACTICE

Remember, the more you practice, the better and faster you become at subnetting!

COMMON MISTAKES

- Forgetting to subtract 2 for hosts
- Using wrong increment value
- Mixing up network vs host bits
- Overlapping subnet ranges

MEMORY AIDS

Powers of 2:
2^1=2, 2^2=4, 2^3=8, 2^4=16
2^5=32, 2^6=64, 2^7=128, 2^8=256

Subnet Masks:
Add from left: 128,64,32,16,8,4,2,1

VERIFICATION

Always Check:
• Subnets ≥ required?
• Hosts ≥ required?
• No range overlaps?
• Network + broadcast correct?