Calculating the Classless Inter-Domain Routing (CIDR) block for a Virtual Private Cloud (VPC) in AWS involves determining the range of IP addresses that your VPC can use. To do this, you need to consider the desired number of subnets and the size of each subnet. Here's a step-by-step guide on how to perform CIDR block calculations for your VPC:

**Step 1: Determine Your IP Address Range**

1.1. Decide on the overall IP address range for your VPC. This is typically expressed as a CIDR notation, such as `10.0.0.0/16` for a VPC with a 16-bit subnet mask.

**Step 2: Decide on the Number of Subnets**

2.1. Determine how many subnets you need within your VPC. Consider factors like network segregation, security, and scalability. Each subnet will have its own CIDR block.

**Step 3: Calculate the Subnet Size**

3.1. Decide on the size (number of IP addresses) of each subnet. For example, you might choose `/24` for subnets with 256 addresses each.

**Step 4: Calculate the Subnet Mask**

4.1. Calculate the subnet mask for each subnet based on the desired size. The formula is: `32 - log2(subnet size)`. For example, if you want 256 addresses in each subnet, the subnet mask would be `/24` (32 - log2(256) = 24).

**Step 5: Create Subnets**

5.1. Divide your VPC's IP address range into subnets based on the subnet mask you calculated in step 4. For example, if your VPC CIDR is `10.0.0.0/16` and you want `/24` subnets, you can create subnets like `10.0.0.0/24`, `10.0.1.0/24`, `10.0.2.0/24`, and so on.

**Step 6: Reserve IP Addresses**

6.1. Reserve some IP addresses within each subnet. The first four IP addresses and the last IP address in each subnet are reserved by AWS and cannot be used. The first IP address (e.g., `10.0.0.0`) is the network address, and the last IP address (e.g., `10.0.0.255`) is the broadcast address.

**Step 7: Plan for Future Growth**

7.1. Consider future growth when allocating CIDR blocks to subnets. Leave room for additional subnets or expansion of existing subnets.

**Example:**

Let's say you have a VPC with the CIDR block `10.0.0.0/16`, and you want to create subnets with 256 addresses each (`/24` subnets). Here's how you can calculate the subnets:

- Subnet 1: `10.0.0.0/24` (256 addresses)

- Subnet 2: `10.0.1.0/24` (256 addresses)

- Subnet 3: `10.0.2.0/24` (256 addresses)

- ...and so on.

Remember that the first four and last IP addresses in each subnet are reserved, so plan your subnetting accordingly.

By following these steps, you can calculate the CIDR blocks for your VPC and subnets to effectively manage your IP address space within AWS.