Name _____


# Unlocking the Web's Secrets: IP Addresses and Domain Names

In the vast realm of the internet, there are two vital players that make it all possible: IP addresses and domain names. These are like the postal system and street names of the internet, ensuring that information reaches its destination accurately and efficiently.

## IP Addresses: The Internet's Unique Identifiers

Imagine if every house in the world had a unique number, so you could always find the right one. Well, that's what IP addresses do for devices on the internet. IP stands for "Internet Protocol," and an IP address is a unique set of numbers assigned to every device connected to the Internet.

- **IPv4 vs. IPv6:** There are two main types of IP addresses: IPv4 and IPv6. IPv4 uses a series of 4 numbers separated by periods (e.g., 192.168.1.1), while IPv6 uses a longer combination (e.g. 2001:0db8:85a3:0000:0000:8a2e:0370:7334). With the rapid growth of the internet, IPv6 was introduced to provide a larger pool of addresses because IPv4 addresses were running out.
- **Your Digital Home Address:** Just like your home has a physical address, your computer or smartphone has an IP address. This address helps data packets (pieces of information) find their way to your device across the vast network of the internet.
- **Dynamic vs. Static IP:** Some IP addresses are static, which means they don't change. Others are dynamic, and they can change each time a device connects to the internet. Internet Service Providers (ISPs) often assign dynamic IP addresses to conserve resources.

## Domain Names: The Web's Friendly Names

While IP addresses are essential, remembering long strings of numbers isn't user-friendly. That's where domain names come to the rescue. Domain names are human-readable web addresses that make navigating the internet a breeze.

- **Website vs. IP Address:** Instead of typing a complex IP address like 198.51.100.25, you can simply enter a domain name like www.example.com. Your web browser uses a special system called the Domain Name System (DNS) to translate the domain name into the corresponding IP address.
- **Parts of a Domain Name:** A domain name is made up of several parts. For example, in www.wikipedia.org, "www" is the subdomain, "wikipedia" is the second-level domain, and "org" is the top-level domain. Different top-level domains (.com, .org, .net, etc.) serve various purposes and are often associated with specific types of websites.
- **Registering a Domain:** If you want your own domain name, you need to register it through a domain registrar. Once registered, you have the right to use that domain name for your website or email.
- **Renewal and Ownership:** Domain names are typically registered for a specific period, like one year. To keep using it, you must renew your registration. If you don't renew, someone else can register the domain name, potentially leading to confusion.

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## Multiple Choice Questions

1. What is the function of an IP address on the internet?

a) It helps translate domain names into numbers.

b) It assigns a unique set of numbers to every connected device.

c) It determines the type of top-level domain for a website.

d) It stores website content.

2. What is the primary purpose of domain names?

a) To make websites more colorful and attractive.

b) To assign unique numbers to devices on the internet.

c) To provide a human-readable way of accessing websites.

d) To protect websites from cyberattacks.

3. What does DNS stand for?

a) Digital Navigation System

b) Domain Name System

c) Dynamic Network Server

d) Digital Naming Service

4. How do dynamic IP addresses differ from static IP addresses?

a) Dynamic IP addresses don't change, while static IP addresses can change.

b) Dynamic IP addresses are shorter than static IP addresses.

c) Dynamic IP addresses are used for websites, while static IP addresses are used for emails.

d) Dynamic IP addresses are assigned by domain registrars.

5. What happens if you don't renew your domain registration?

a) Your website content will be deleted.

b) Your domain name will become a subdomain.

c) Someone else can register the domain name.

d) Your IP address will change.