

Notes for this exercise

There are 2 situations in order to troubleshoot the ping connectivity. To illustrate, there will be different checklists for different situations.

Situation 1

Two PC connected with one switch

1. Same subnet
2. Same VLAN

Situation2

Two PC connected with different switch

1. Same subnet
2. Same VLAN
3. Trunking modes -- Must be in trunk mode form
4. Native VLAN must be the same
5. VLAN allowed list must be the same

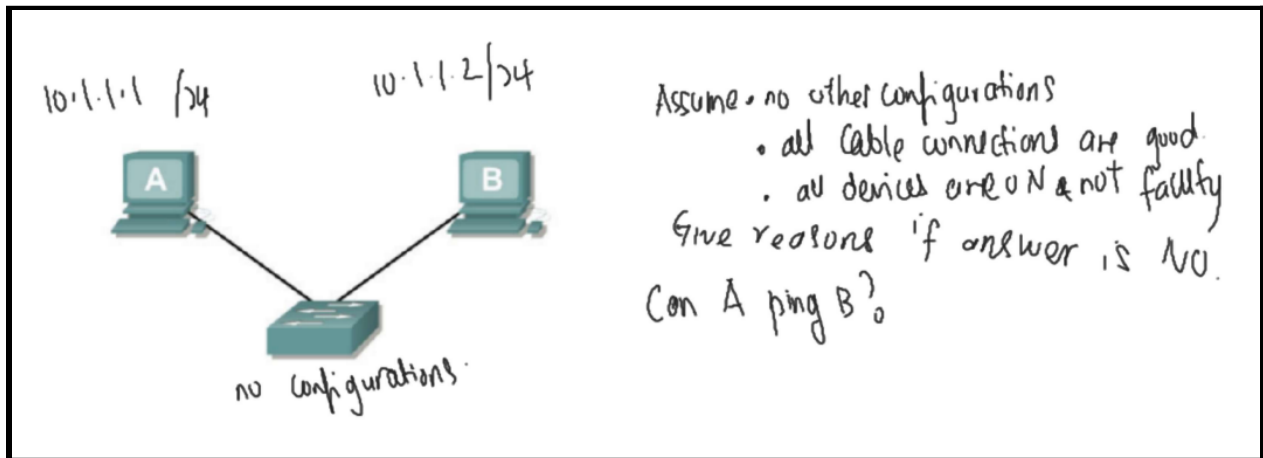
Negotiated Interface Modes

	Dynamic Auto	Dynamic Desirable	Trunk	Access
Dynamic Auto	Access	Trunk	Trunk	Access
Dynamic Desirable	Trunk	Trunk	Trunk	Access
Trunk	Trunk	Trunk	Trunk	Limited connectivity
Access	Access	Access	Limited connectivity	Access

- Any mode dealing with access mode will not negotiate the neighboring link into trunk mode.
- Auto and auto will not negotiate the neighboring link into trunk mode.
- Others will convert the neighboring link into trunk mode.

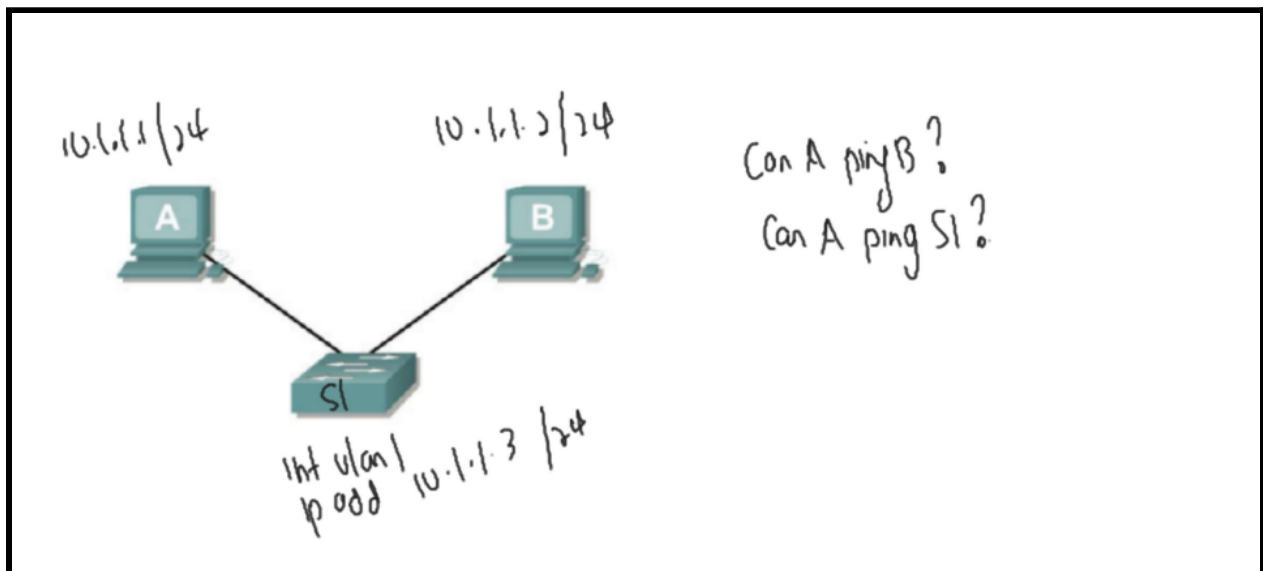
Instruction: Write out the ping result and state the reason if ping fails.

Question1 (Same Subnet)



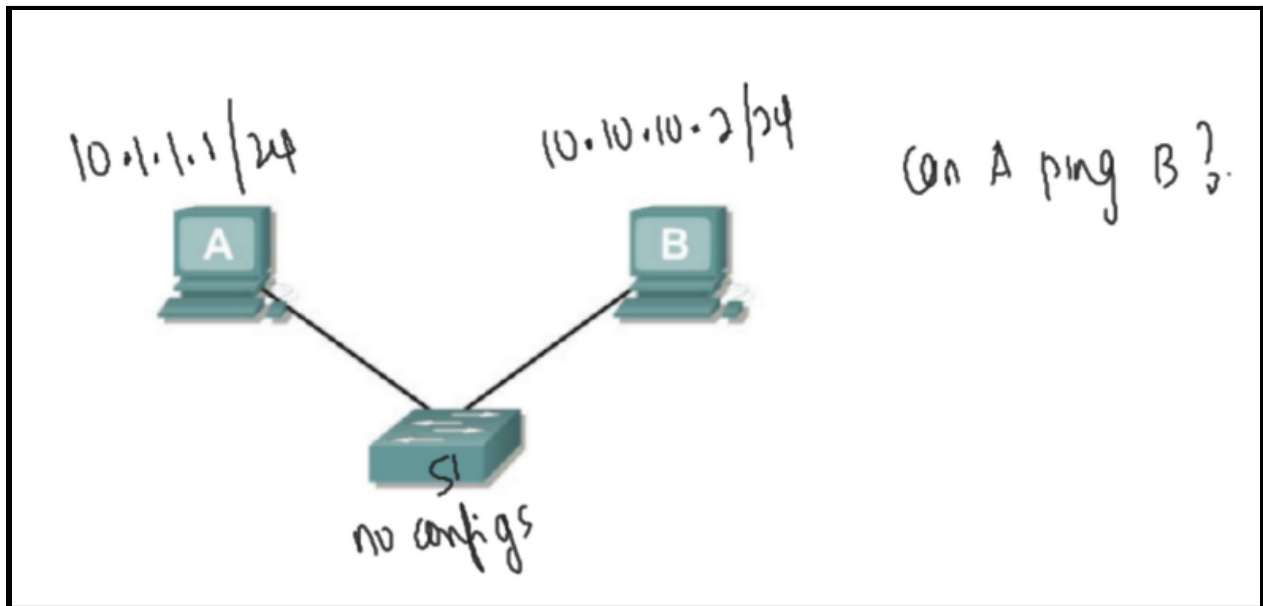
- Yes, A can ping B. Switch is a plug and play device in which it does not need configuration to communicate with each other.

Question 2 (Same Subnet)



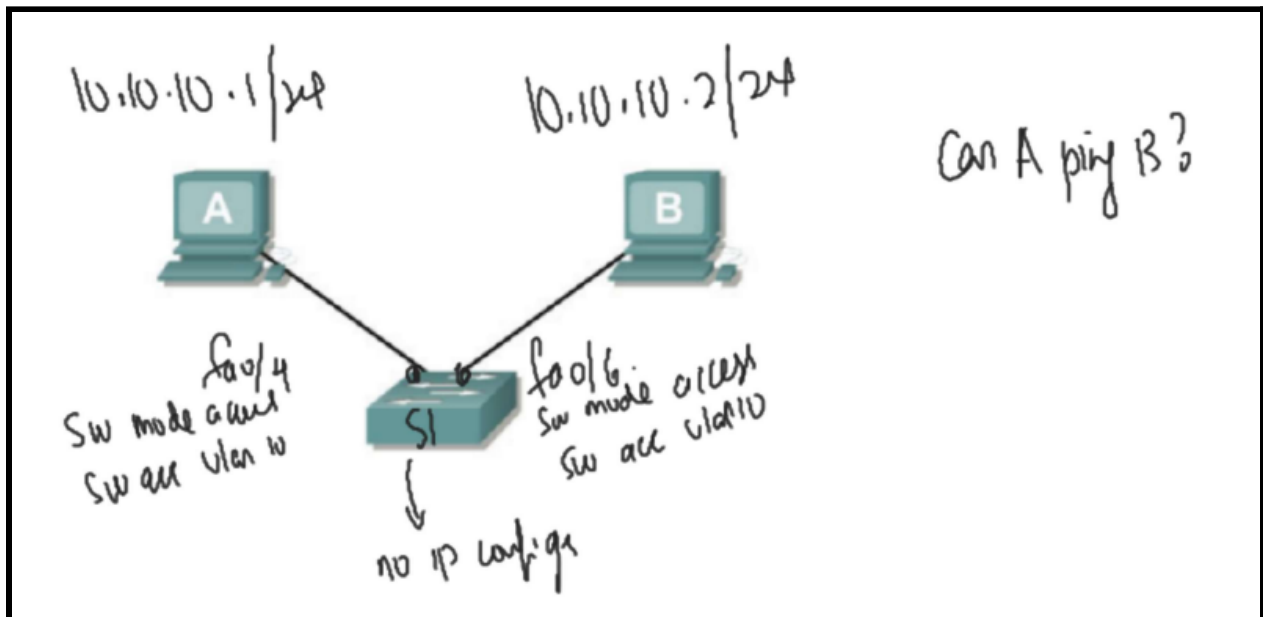
- Yes, A can ping B.
- Yes, A can ping S1.

Question 3 (Different Subnet)



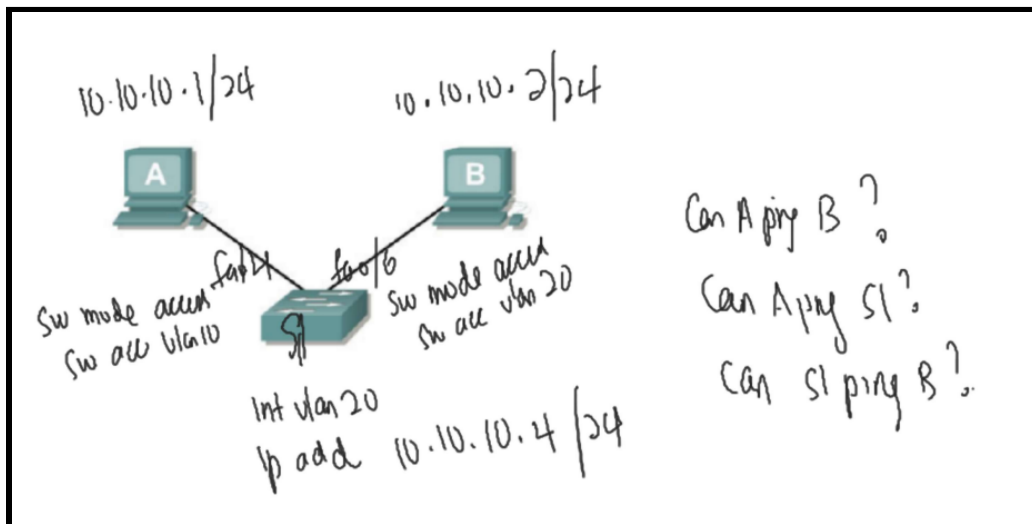
- No, A cannot ping B. This is because PC A and PC B are not in the same subnet. If we want the ping result to be successful, a default gateway or layer 3 switch must be configured to route traffic from one subnet to another.

Question 4 (Same Subnet)



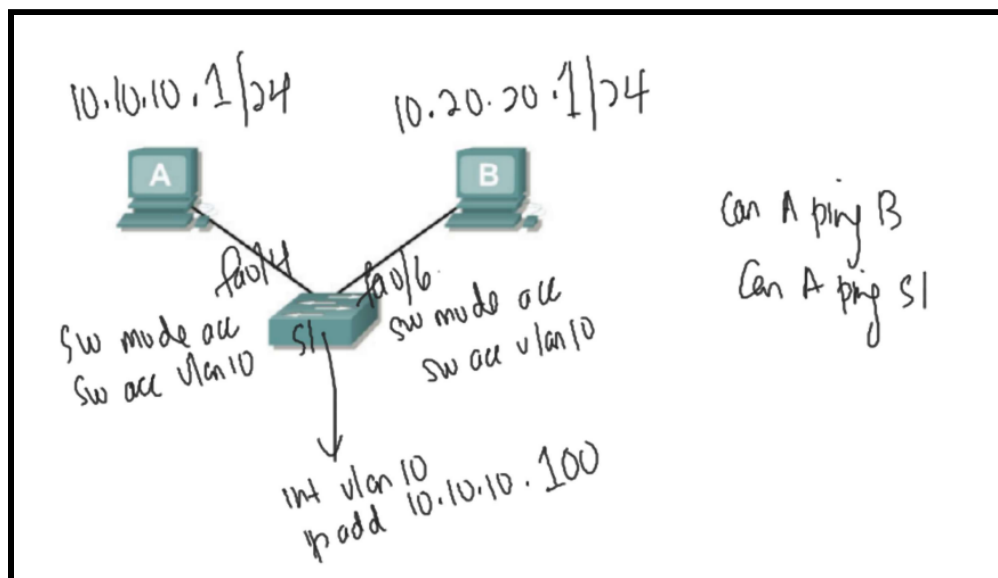
- Yes, A can ping B.

Question 5 (Same subnet but different vlan)



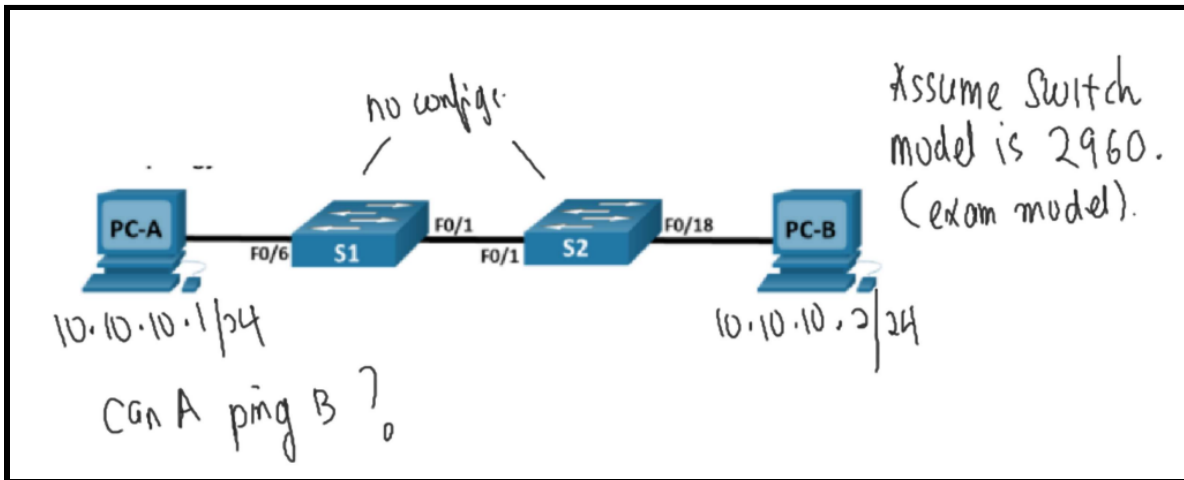
- No, A cannot ping B. This is because PC A and PC B are on a different VLAN (A is on VLAN 10 whereas B is on VLAN 20). Devices on a different VLAN cannot communicate with each other.
- No, A cannot ping S1. This is because PC A and S1 are on a different VLAN in which S1 only configures the SVI for VLAN 20 but not VLAN 10.
- Yes, S1 can ping B.

Question 6 (Different subnet but same vlan)



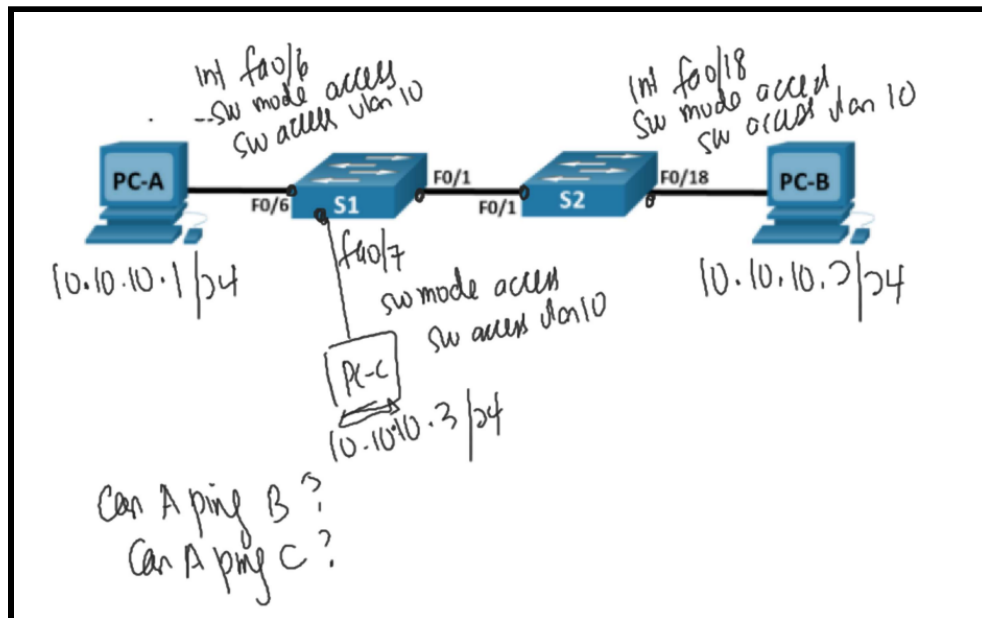
- No, A cannot ping B. This is because PC A and PC B are not in the same subnet. If we want the ping result to be successful, a default gateway or layer 3 switch must be configured to route traffic from one subnet to another.
- Yes, A can ping S1.

Question 7 (Same subnet)



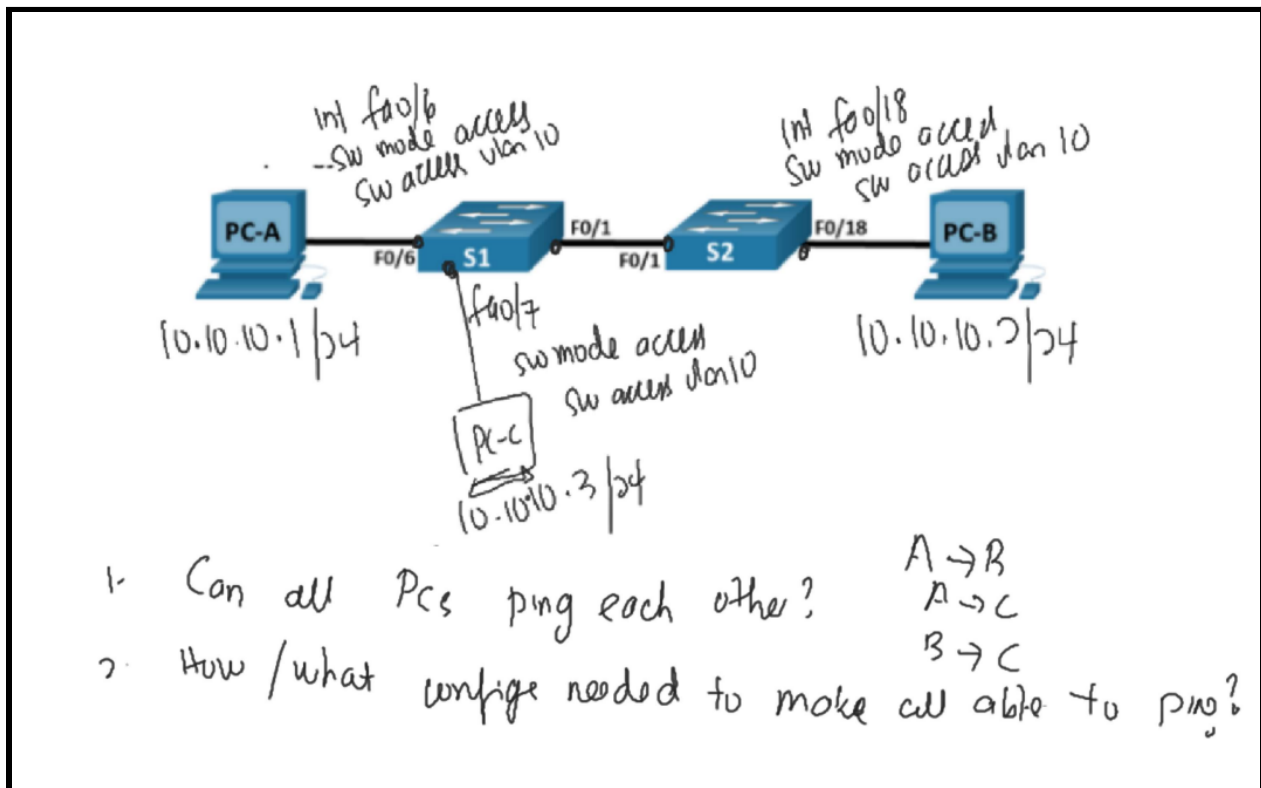
Yes, A can ping B. Since PC-A and PC-B do not have any VLAN configuration, they will stay in VLAN 1 by default (which can be considered as no VLAN). The switch will send the untagged frame to the destination device based MAC address. Since we didn't configure native vlan, the untagged frame will be forwarded to VLAN 1 by default (in which PC-B also in VLAN 1).

Question 8



- No, A cannot ping B. This is because S1 and S2 both have dynamic auto as trunking mode, so the trunk cannot be formed since the PCA and PCB are using different switches.
- Yes, A can ping C.

Question 9



- No, not all PCs can ping each other.

A → B = Ping Failed. This is because S1 and S2 both have dynamic auto as trunking mode, so the trunk cannot be formed since the PCA and PCB are using different switches.

A → C = Ping Successfully

B → C = Ping Failed. This is because S1 and S2 both have dynamic auto as trunking mode, so the trunk cannot be formed since the PCA and PCB are using different switches.

- We should assign the interface fa0/1 of S1 and S2 to the trunk port.

Example:

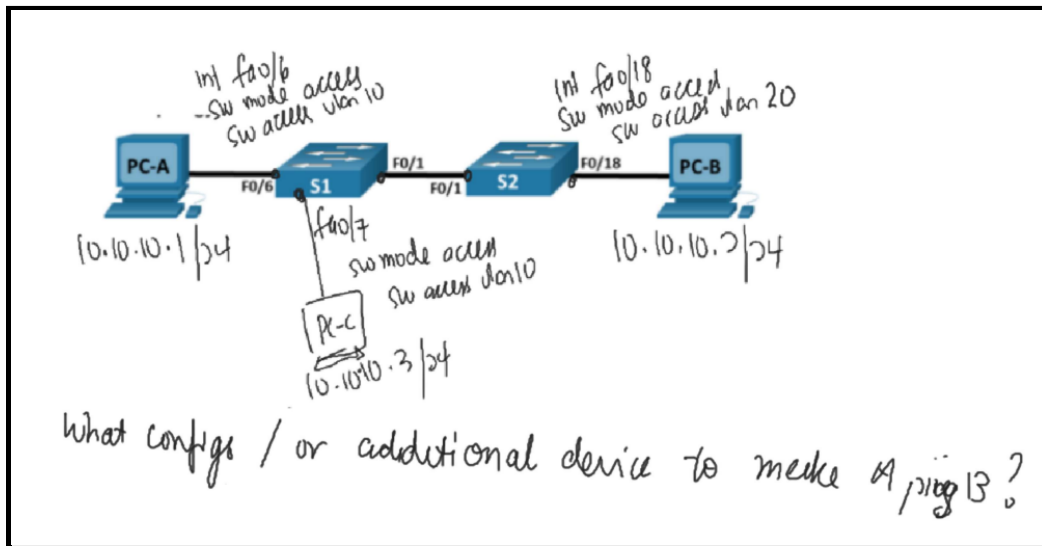
```
S1(config-if)#int fa0/1
```

```
S1(config-if)#switchport mode trunk
```

```
S2(config-if)#int fa0/1
```

```
S2(config-if)#switchport mode trunk
```

Question 10



- We can add a default gateway (router) or layer 3 switch to route traffic from one VLAN to another (inter-vlan which will be discussed in the next chapter).

Additional Notes for Week 5 CN Session