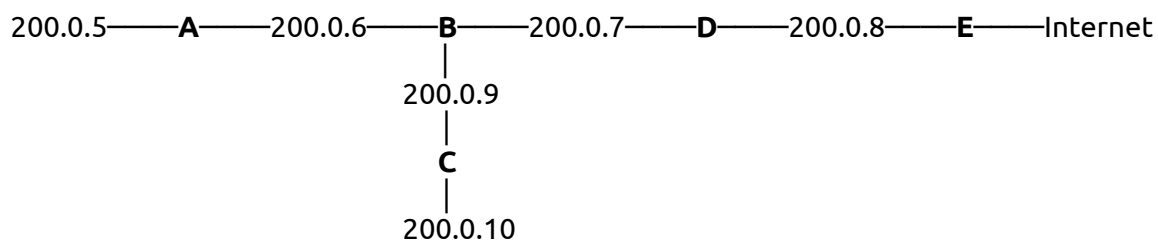Question 4: The following diagram has routers A, B, C, D and E; E is the "border router" connecting the site to the Internet. All router-to-router connections are via Ethernet-LAN /24 subnets with addresses of the form 200.0.x. Give forwarding tables for each of A, B, C and D. Each table should include each of the listed subnets and also a **default** entry that routes traffic toward router E. Directly connected subnets may be listed with a next_hop of "direct".

```
200.0.5——A——200.0.6——B——200.0.7——D——200.0.8——E——Internet
                        |
                    200.0.9
                        |
                        C
                        |
                    200.0.10
```

A Forwarding Table	
Destination	next_hop
A	direct
B	200.0.6/24
C	200.0.6/24
D	200.0.6/24
E	200.0.6/24

B Forwarding Table	
Destination	next_hop
A	200.0.6/24
B	direct
C	200.0.9/24
D	200.0.7/24
E	200.0.7/24

C Forwarding Table	
Destination	next_hop
A	200.0.9/24
B	200.0.7/24
C	direct
D	200.0.9/24
E	200.0.9/24

D Forwarding Table	
Destination	next_hop
A	200.0.7/24
B	200.0.7/24
C	200.0.7/24
D	direct
E	200.0.8/24

E Forwarding Table	
Destination	next_hop
A	200.0.8/24
B	200.0.8/24
C	200.0.8/24
D	200.0.8/24
E	direct

Question 6: For each IPv4 network prefix given (with length), identify which of the subsequent IPv4 addresses are part of the same subnet.

Highlighted with green are part of the same subnet

(a) **10.0.130.0/23**: 10.0.130.23, 10.0.129.1, 10.0.131.12, 10.0.132.7
(b) **10.0.132.0/22**: 10.0.130.23, 10.0.135.1, 10.0.134.12, 10.0.136.7
(c) **10.0.64.0/18**: 10.0.65.13, 10.0.32.4, 10.0.127.3, 10.0.128.4
(d) **10.0.168.0/21**: 10.0.166.1, 10.0.170.3, 10.0.174.5, 10.0.177.7
(e) **10.0.0.64/26**: 10.0.0.125, 10.0.0.66, 10.0.0.130, 10.0.0.62

Question 6.5: Convert the following subnet masks to /k notation, and vice-versa:

(a) 255.255.240.0
   ○ 11111111.11111111.11110000.00000000 = **/20**
(b) 255.255.248.0
   ○ 11111111.11111111.11111000.00000000 = **/21**
(c) 255.255.255.192
   ○ 11111111.11111111.11111111.11000000 = **/26**
(d) /20
   ○ 11111111.11111111.11110000.00000000 = **255.255.240.0**
(e) /22
   ○ 11111111.11111111.11111100.00000000 = **255.255.252.0**
(f) /27
   ○ 11111111.11111111.11111111.11100000 = **255.255.255.224**