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CS 132 Homework 4

1.

Chapter 4, Problem 13

Subnet 1: 223.1.17.0/26

Subnet 2: 223.1.17.128/25

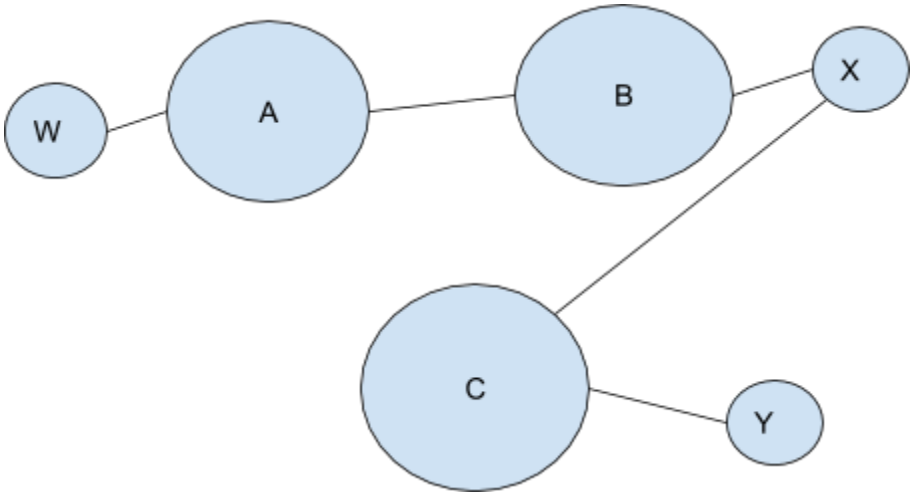
Subnet 3: 223.1.17.192/28

Chapter 4, Problem 21

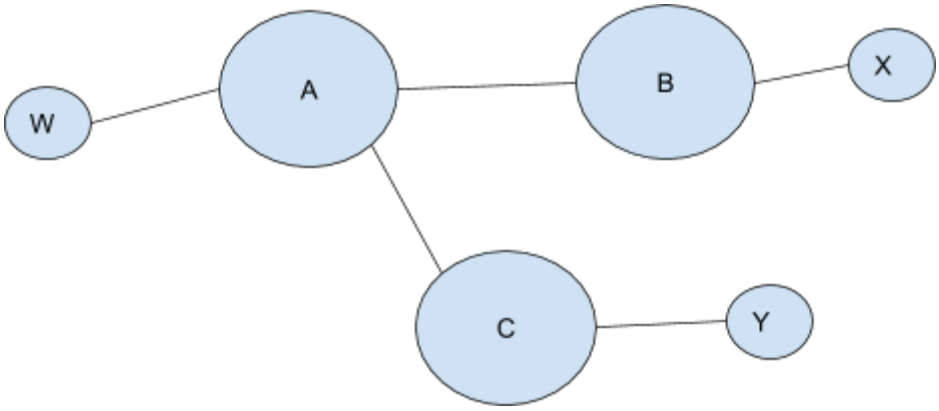
NAT Translation Table	
WAN side	LAN side
24.34.112.235, 0 **24.34.112.235, 1** **24.34.112.235, 2** **24.34.112.235, 3** **24.34.112.235, 4** **24.34.112.235, 5**	**192.168.1.1, 1** **192.168.1.1, 2** **192.168.1.2, 1** **192.168.1.2, 2** **192.168.1.3, 1** **192.168.1.3, 2**

2.

Chapter 4, Problem 40



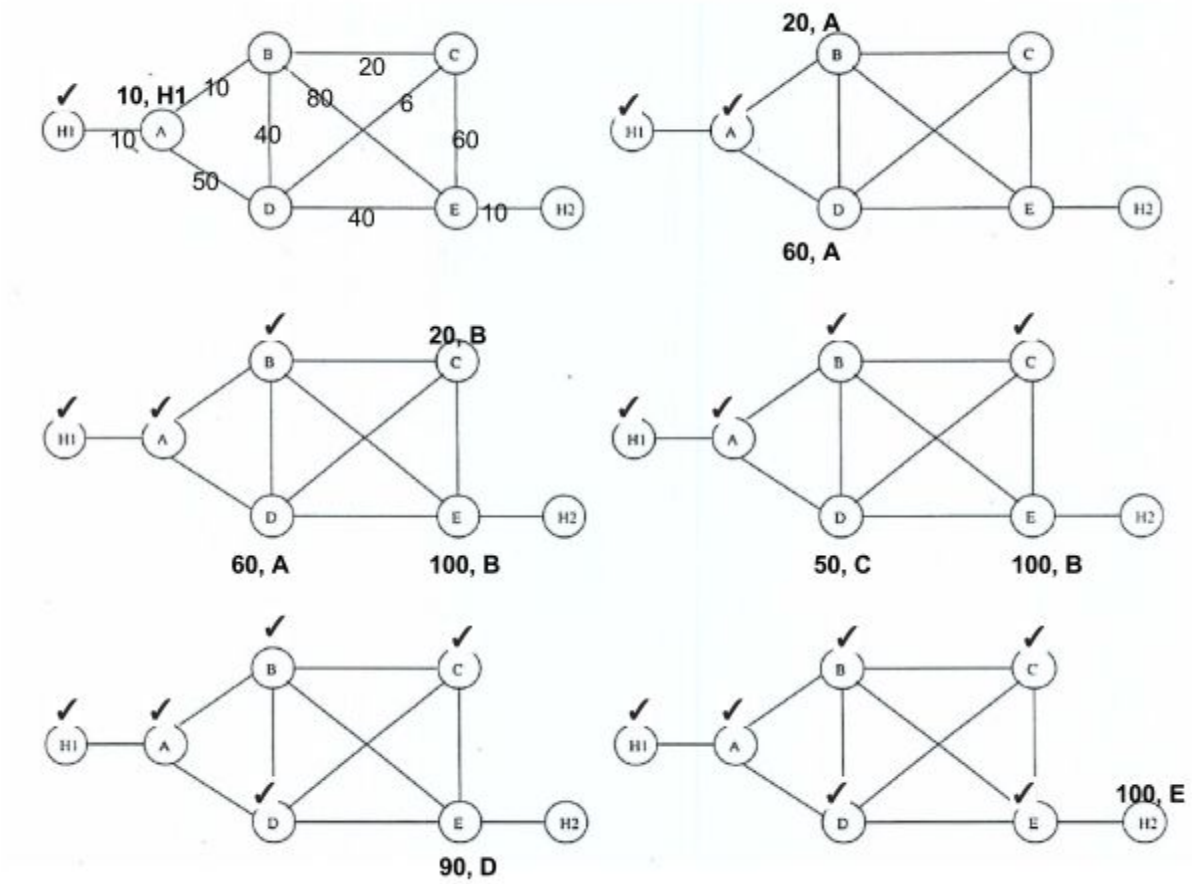
Above is X's view of the network topology



Above is W's view of the network topology.

3.

a.



b. **No this route is not the same as the route with the minimum number of hops.**

C.

Initial tables

Node A (B, D)		
Dest.	Via	Delay
A	A	0
B	-	∞
C	-	∞
D	-	∞
E	-	∞

Node B (A, C, D, E)		
Dest.	Via	Delay
A	-	∞
B	B	0
C	-	∞
D	-	∞
E	-	∞

Node C (B, D, E)		
Dest.	Via	Delay
A	-	∞
B	-	∞
C	C	0
D	-	∞
E	-	∞

Node D (A, B, C, E)		
Dest.	Via	Delay
A	-	∞
B	-	∞
C	-	∞
D	D	0
E	-	∞

Node E (B, C, D)		
Dest.	Via	Delay
A	-	∞
B	-	∞
C	-	∞
D	-	∞
E	E	0

Tables after first exchange

Node A (B, D)		
Dest.	Via	Delay
A	A	0
B	B	10
C	D	50
D		
E		

Node B (A, C, D, E)		
Dest.	Via	Delay
A	A	10
B	B	0
C	C	20
D	D	40
E	E	80

Node C (B, D, E)		
Dest.	Via	Delay
A		
B	B	20
C	C	0
D	D	10
E	E	60

Node D (A, B, C, E)		
Dest.	Via	Delay
A	A	50
B	B	40
C	C	10
D	D	0
E	E	40

Node E (B, C, D)		
Dest.	Via	Delay
A		
B	A	80
C	C	60
D	D	40
E	E	0

Tables after second exchange

Node A (B, D)		
Dest.	Via	Delay
A	A	0
B	B	10
C	B	30
D	D	50
E	B	90

Node B (A, C, D, E)		
Dest.	Via	Delay
A	A	10
B	B	0
C	C	20
D	C	40
E	E	80

Node C (B, D, E)		
Dest.	Via	Delay
A	B	30
B	B	20
C	C	0
D	D	10
E	D	50

Node D (A, B, C, E)		
Dest.	Via	Delay
A	A	50
B	C	30
C	C	10
D	D	0
E	E	40

Node E (B, C, D)		
Dest.	Via	Delay
A	D	90
B	A	80
C	D	50
D	D	40
E	E	0

Tables after third exchange

Node A (B, D)		
Dest.	Via	Delay
A	A	0
B	B	10
C	B	30
D	B	40
E	C	80

Node B (A, C, D, E)		
Dest.	Via	Delay
A	A	10
B	B	0
C	C	20
D	C	30
E	C	70

Node C (B, D, E)		
Dest.	Via	Delay
A	B	30
B	B	20
C	C	0
D	D	10
E	D	50

Node D (A, B, C, E)		
Dest.	Via	Delay
A	C	40
B	C	30
C	C	10
D	D	0
E	E	40

Node E (B, C, D)		
Dest.	Via	Delay
A	C	80
B	D	70
C	D	50
D	D	40
E	E	0

Tables after fourth exchange

Node A (B, D)		
Dest.	Via	Delay
A	A	0
B	B	10
C	B	30
D	B	40
E	B	80

Node B (A, C, D, E)		
Dest.	Via	Delay
A	A	10
B	B	0
C	C	20
D	C	30
E	C	70

Node C (B, D, E)		
Dest.	Via	Delay
A	B	30
B	B	20
C	C	0
D	D	10
E	D	50

Node D (A, B, C, E)		
Dest.	Via	Delay
A	C	40
B	C	30
C	C	10
D	D	0
E	E	40

Node E (B, C, D)		
Dest.	Via	Delay
A	D	80
B	D	70
C	D	50
D	D	40
E	E	0

d.

Initial tables

Node A (B, D)		
Dest.	Via	Delay
A	A	0
B	B	10
C	B	30
D	B	40
E	B	80

Node B (A, C, D, E)		
Dest.	Via	Delay
A	A	10
B	B	0
C	C	20
D	C	30
E	C	70

Node C (B, D, E)		
Dest.	Via	Delay
A	B	30
B	B	20
C	C	0
D	D	10
E	D	50

Node D (A, B, C, E)		
Dest.	Via	Delay
A	C	40
B	C	30
C	C	10
D	D	0
E	E	40

Node E (B, C, D)		
Dest.	Via	Delay
A	D	80
B	D	70
C	D	50
D	D	40
E	E	0

Tables after first exchange

Node A (B, D)		
Dest.	Via	Delay
A	A	0
B	D	80
C	D	60
D	D	50
E	D	90

Node B (A, C, D, E)		
Dest.	Via	Delay
A	C	50
B	B	0
C	C	20
D	C	30
E	C	70

Node C (B, D, E)		
Dest.	Via	Delay
A	B	30
B	B	20
C	C	0
D	D	10
E	E	50

Node D (A, B, C, E)		
Dest.	Via	Delay
A	C	40
B	C	30
C	C	10
D	D	0
E	E	40

Node E (B, C, D)		
Dest.	Via	Delay
A	D	80
B	D	70
C	D	50
D	D	40
E	E	0

Tables after second exchange

Node A (B, D)		
Dest.	Via	Delay
A	A	0
B	D	80
C	D	60
D	D	50
E	D	90

Node B (A, C, D, E)		
Dest.	Via	Delay
A	C	50
B	B	0
C	C	20
D	C	30
E	C	70

Node C (B, D, E)		
Dest.	Via	Delay
A	D	50
B	B	20
C	C	0
D	D	10
E	E	50

Node D (A, B, C, E)		
Dest.	Via	Delay
A	C	40
B	C	30
C	C	10
D	D	0
E	E	40

Node E (B, C, D)		
Dest.	Via	Delay
A	D	80
B	D	70
C	D	50
D	D	40
E	E	0

Tables after third exchange

Node A (B, D)		
Dest.	Via	Delay
A	A	0
B	D	80
C	D	60
D	D	50
E	D	90

Node B (A, C, D, E)		
Dest.	Via	Delay
A	C	70
B	B	0
C	C	20
D	C	30
E	C	70

Node C (B, D, E)		
Dest.	Via	Delay
A	D	50
B	B	20
C	C	0
D	D	10
E	E	50

Node D (A, B, C, E)		
Dest.	Via	Delay
A	A	50
B	C	30
C	C	10
D	D	0
E	E	40

Node E (B, C, D)		
Dest.	Via	Delay
A	D	80
B	D	70
C	D	50
D	D	40
E	E	0

Tables after fourth exchange

Node A (B, D)		
Dest.	Via	Delay
A	A	0
B	D	80
C	D	60
D	D	50
E	D	90

Node B (A, C, D, E)		
Dest.	Via	Delay
A	C	70
B	B	0
C	C	20
D	C	30
E	C	70

Node C (B, D, E)		
Dest.	Via	Delay
A	D	60
B	B	20
C	C	0
D	D	10
E	E	50

Node D (A, B, C, E)		
Dest.	Via	Delay
A	D	50
B	C	30
C	C	0
D	D	10
E	E	40

Node E (B, C, D)		
Dest.	Via	Delay
A	D	90
B	D	70
C	D	50
D	D	40
E	E	0

Yes the algorithm converges.