i) Xmit A to C

B1 learns A is on A-interface
B2 " " " " B1-interface
B3 " " " " B2-interface
B4 " " " " B2-interface

Xmit C to A

B3 learns C is on C-interface
B2 " " " " B3-interface
B1 " " " " B2-interface

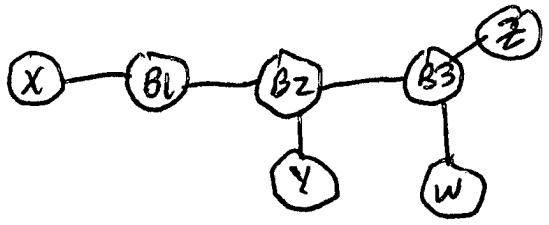
B4 does not learn about C because B2 knows where to send the packet.

Xmit D to C

B4 learns D is on D-interface
B2 " " " " B4-interface
B3 " " " " B2-interface

B1 does not learn about D because B2 know where to send the packet

Bridge 1: A interface: A, B2 interface: C
Bridge 2: B1-interface: A, B3 interface: C, B4 interface: D
Bridge 3: B2-interface A, D C-interface: C
Bridge 4: B2-interface: A D interface; D

2) 

Start with empty tables

a) X → W Bridges B1, B2 and B3 learn where X is located
Y's interface sees this packet

b) Z → X Bridges B3, B2 and B1 learn where Z is located
Y's interface does not see the packet

c) Y → X Bridges B2 and B1 learn where Y is located
Z's interface does not see the packet

d) W → Y Bridges B3 and B2 learn where W is located
Z's interface sees this packet

3) MTU = 380 bytes = 360 bytes data + 20 bytes header

a) fragments of figure 3.186

frag 1	H + 512 bytes data	H = Header = 20 bytes
frag 2	H + 512 bytes data	
frag 3	H + 376 bytes	

to go to an MTU of 380 (20 bytes header + 360 bytes data), the fragments above must be fragmented:

flag	*Offset (8 byte words)	Bytes of data	source
1	0	360	frag 1
1	360/8 = 45	152	frag 1
1	45 + 152/8 = 64	360	frag 2
1	64 + 45 = 109	152	frag 2
1	109 + 19 = 128	360	frag 3
0	128 + 45 = 173	16	frag 3

* offset field for IP FS The number of 8 byte words of data

b) 1400 bytes of data to format into MTU of 380

flag	offset	Data (bytes)
1	0	360
1	360/8 = 45	360
1	90	360
1	135	320
0		

4 fragments needed

3) MTU = 380 Bytes (data and Header) - Book's answer

a) fragments from figure 3.18b:

H - Header = 20 Bytes

frag1 H + 512 bytes
frag2 H + 512 bytes
frag3 H + 376 Bytes

Header + Data = 20 + 360

to go to MTU of 380 Bytes, fragments must be split

new packets are

flag	offset	Bytes of Data	Source
1	0	360	frag1
1	360	152	frag1
1	512	360	frag2
1	872	152	frag2
1	1024	360	frag3
0	1384	16	frag3

b) 1400 bytes of data to fragment

flag	offset	Data
1	0	360
1	360	360
1	720	360
0	1080	320

4 fragments are needed

4) 576 byte packets 60 seconds for no wrap

Ident field is 16 bits - largest Ident # is 2^{16}

assuming all packets are out in the 60 seconds

$$\frac{576 \text{ Bytes}}{\text{Packet}}\left(\frac{8 \text{ bits}}{\text{Byte}}\right)\left(\frac{2^{16} \text{ Packets}}{60 \text{ seconds}}\right) = 5.0332 \times 10^6 \frac{\text{bits}}{\text{second}}$$

max transmission rate is **5.0332 Mbps**

if the BW is exceeded, fragments of one packet could have the same Ident field value as the fragments of another packet.