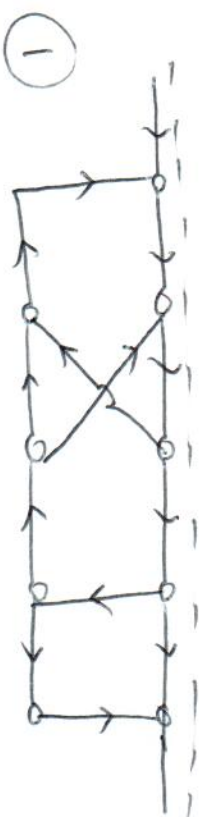
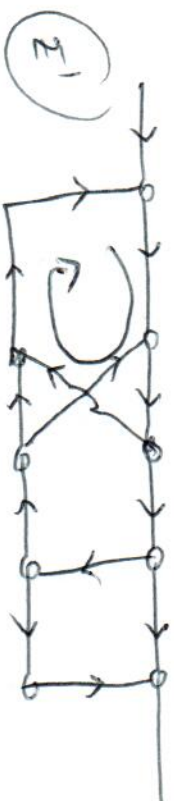


Forward paths

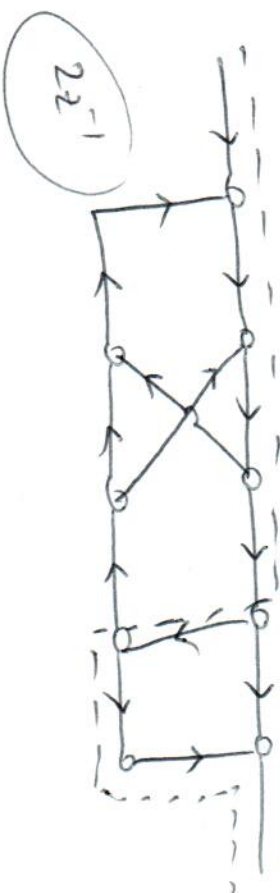


Loops



$$\Delta(z) = 1 - \left(-\frac{1}{2} z^{-1} + z^{-1} + 2z^{-2} \right)$$

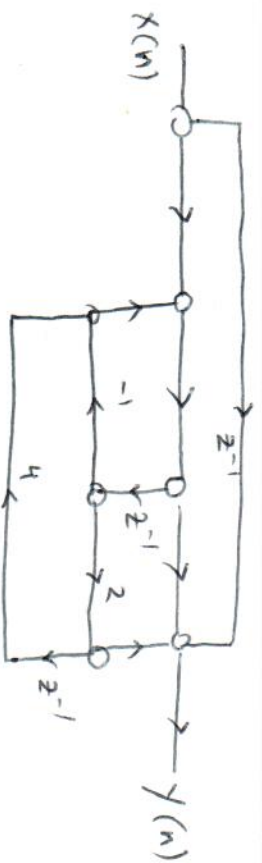
$$= 1 - \frac{1}{2} z^{-1} - 2z^{-2}$$



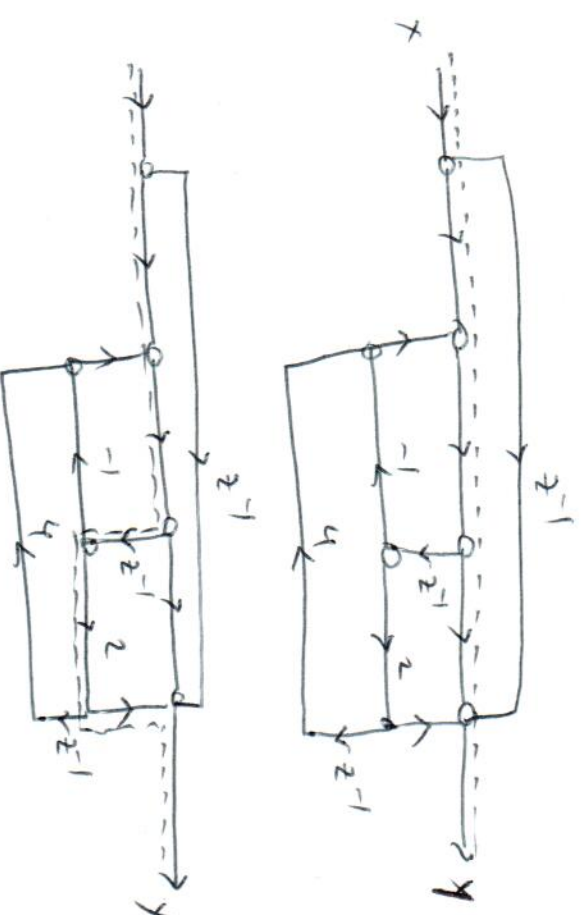
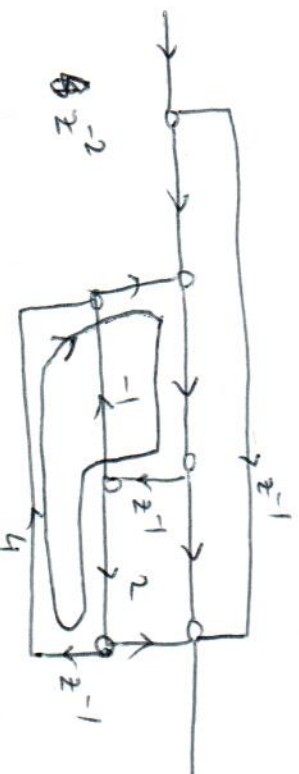
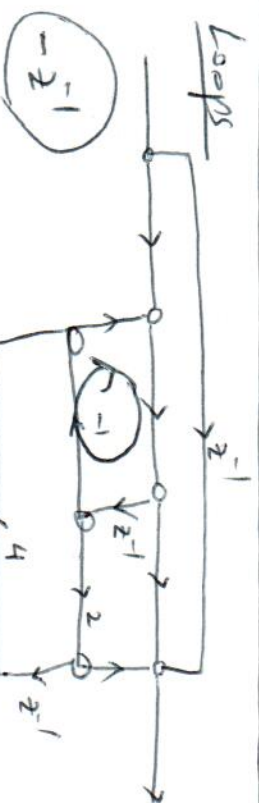
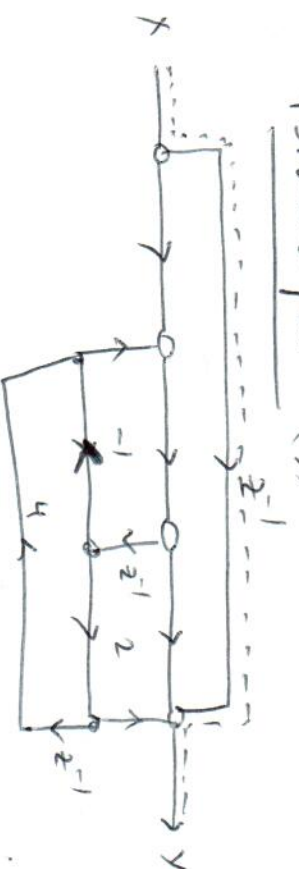
z	P_z	Δz
1	1	1
2	$2z^{-1}$	1

$$\text{Numerators} = 1 + 2z^{-1}$$

$$H(z) = \frac{1 + 2z^{-1}}{1 - \frac{1}{2} z^{-1} - 2z^{-2}}$$



Forward path (3)



$$\Delta(z) = 1 - (-2^{-1} + 8z^{-2})$$

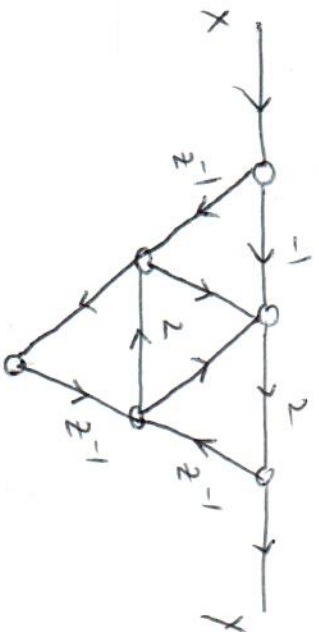
$$= 1 + 2^{-1} - 8z^{-2}$$

L	P_L	Δ_L
1	z^{-1}	$1 + 2^{-1} - 8z^{-2}$
2	1	1
3	$2z^{-1}$	1

$$\text{Numerator} = z^{-1}(1 + 2^{-1} - 8z^{-2}) + 1 + 2z^{-1}$$

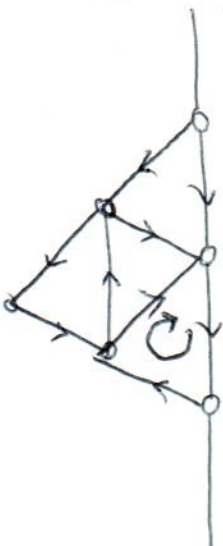
$$= 1 + 3z^{-1} + z^{-2} - 8z^{-3}$$

$$H(z) = \frac{1 + 3z^{-1} + z^{-2} - 8z^{-3}}{1 + 2^{-1} - 8z^{-2}}$$

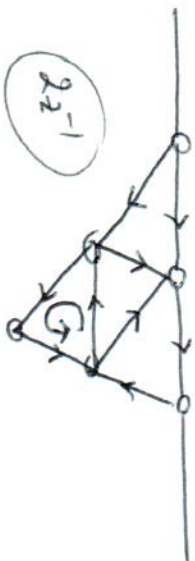


Loops

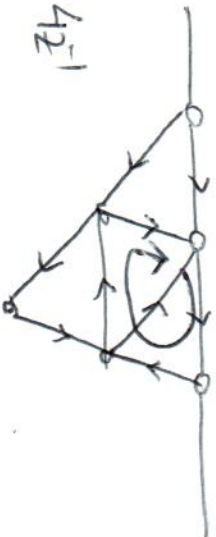
$2z^{-1}$



$2z^{-1}$



$4z^{-1}$



$$\Delta(z) = 1 - (2z^{-1} + 2z^{-1} + 4z^{-1})$$

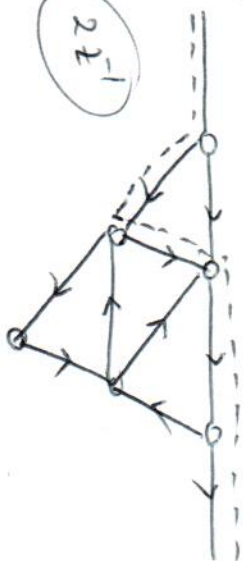
$$= 1 - 8z^{-1}$$

Forward paths (3)

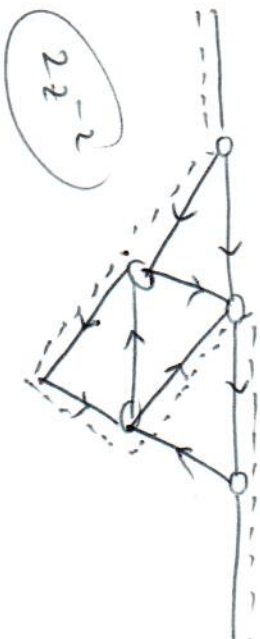
-2



$2z^{-1}$



$2z^{-2}$



l	P_l	Δ_l
1	-2	$1 - 2z^{-1}$
2	$2z^{-1}$	1
3	$2z^{-2}$	1

$$\text{Numerator} = -2(1 - 2z^{-1}) + 2z^{-1} + 2z^{-2}$$

$$= -2 + 6z^{-1} + 2z^{-2}$$

$$H(z) = \frac{-2 + 6z^{-1} + 2z^{-2}}{1 - 8z^{-1}}$$