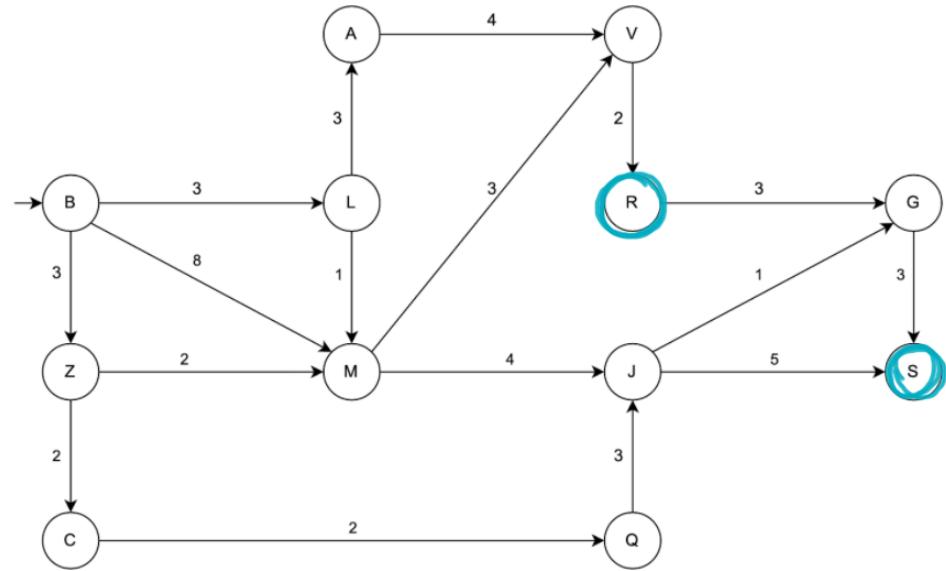


Ejercicio 1.a. Búsqueda en anchura



Secuencia de nodos: $B, L, M, Z, A, V, R, G, J, S$

Estado objetivo alcanzado: S

Camino solución: $C \rightarrow B \rightarrow M \rightarrow J \rightarrow S$

Peso de la solución: $8 + 4 + 5 = 17$

ABIERTOS

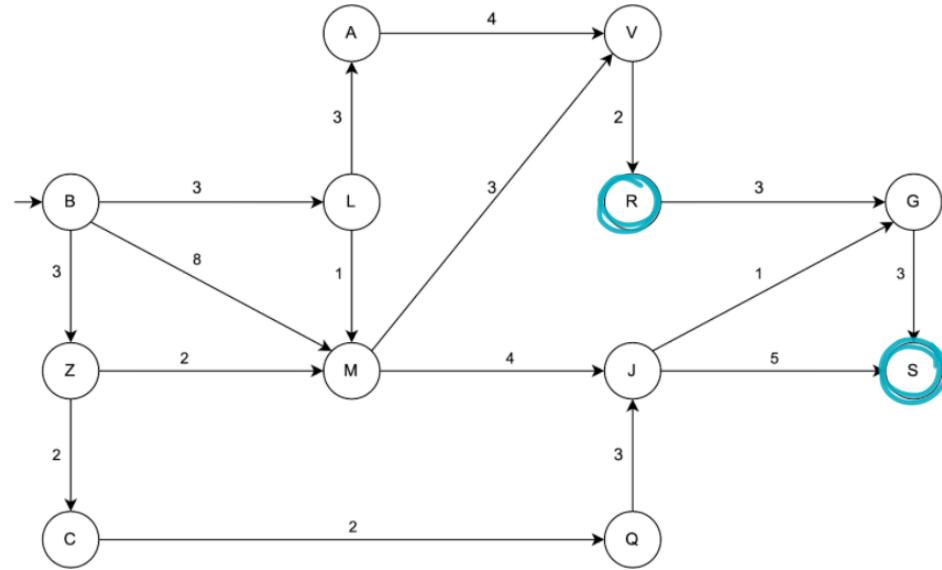
- ~~(B, Ø)~~
- ~~(L, B)~~
- ~~(M, B)~~
- ~~(Z, B)~~
- ~~(A, L)~~
- ~~(J, M)~~
- ~~(V, M)~~
- ~~(C, Z)~~
- ~~(G, J)~~
- (S, J)

CERRADOS

- (B, Ø)
- (L, B)
- (M, B)
- (Z, B)
- (A, L)
- (J, M)

Paramos cuando
solución en abiertos

Ejercicio 1.b. Coste uniforme



Secuencia de nodos: $B, L, Z, M, C, A, Q, V, J, G, R$

Estado objetivo alcanzado: R

Camino solución: $C \rightarrow B \rightarrow L \rightarrow M \rightarrow V \rightarrow R$

Coste de la solución: 9

ABIERTOS

~~(B, ∅, 0)~~

~~(L, B, 3)~~

~~(M, B, 8)~~

~~(Z, B, 3)~~

~~(A, L, 6)~~

~~(M, L, 4)~~

~~(Z, Z, 5)~~

~~(C, Z, 5)~~

~~(J, M, 8)~~

~~(V, M, 7)~~

~~(Q, C, 7)~~

~~(V, A, 10)~~

~~(Z, Q, 10)~~

~~(L, V, 9)~~

~~(G, J, 9)~~

~~(S, J, 13)~~

~~(S, G, 12)~~

CERRADOS

~~(B, ∅, 0)~~

~~(L, B, 3)~~

~~(Z, B, 3)~~

~~(M, L, 4)~~

~~(C, Z, 5)~~

~~(A, L, 6)~~

~~(Q, C, 7)~~

~~(V, M, 7)~~

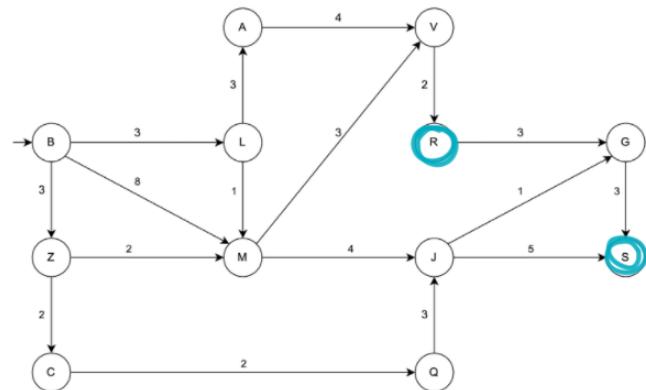
~~(J, M, 8)~~

~~(G, J, 9)~~

~~(S, G, 12)~~

(C, V, 9)

Ejercicio 1.c. A*



$$h(G) = 8$$

v

$$h^*(G) = 3$$

Secuencia de nodos: B, M, Z, C, Q, L, A, (S, J, 13, 0, 13)

Estado objetivo alcanzado: S J, S

Camino solución: C B → L → M → J → S

coste de la solución: 13

ABIERTOS

(B, d, 0, 12, 12)

(L, B, 3, 11, 14)

(M, B, 8, 4, 12)

(Z, B, 3, 10, 13) (3, M, 8, 7, 15)

(3, M, 12, 7, 17) (3, M, 9, 7, 16)

(V, M, 11, 8, 19) (V, M, 8, 8, 16)

(C, Z, 5, 3, 8) (V, M, 7, 8, 15)

(Q, C, 7, 5, 12)

(J, Q, 10, 7, 17)

(A, L, 6, 9, 15)

(V, A, 10, 8, 18)

(G, J, 9, 8, 17)

(S, J, 13, 0, 13)

CERRADOS

(B, d, 0, 12, 12)

(M, B, 8, 4, 12) (M, B, 7, 5, 4, 9)

(Z, B, 3, 10, 13) (M, L, 4, 4, 8)

(C, Z, 5, 3, 8)

(Q, C, 7, 5, 12)

(L, B, 3, 11, 14)

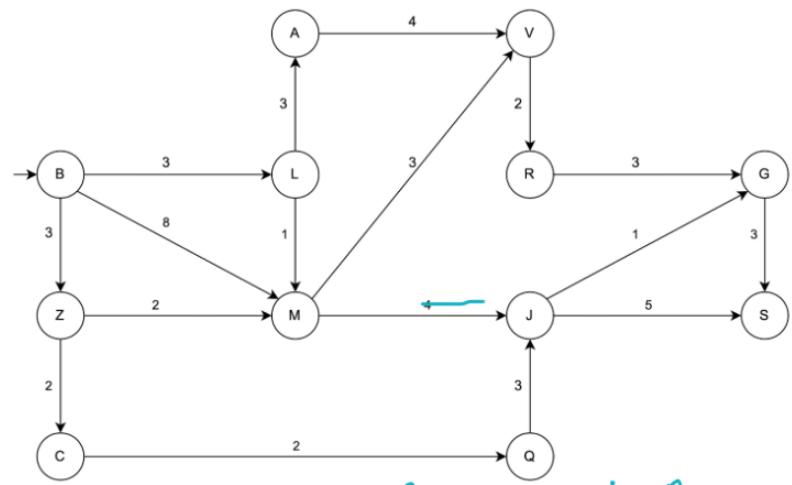
(A, L, 6, 9, 15)

(J, M, 8, 7, 15)

(S, J, 13, 0, 13)

A	B	C	G	J	L	M	Q	R	S	V	Z
9	12	3	8	7	11	4	5	0	0	8	10

Ejercicio 2. Métodos de escalada



Secuencia de nodos: B, L, A, V, R

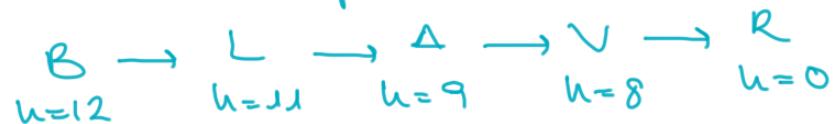
Estado objetivo alcanzado: R

Camino solución: $C \rightarrow B \rightarrow L \rightarrow A \rightarrow V \rightarrow R$

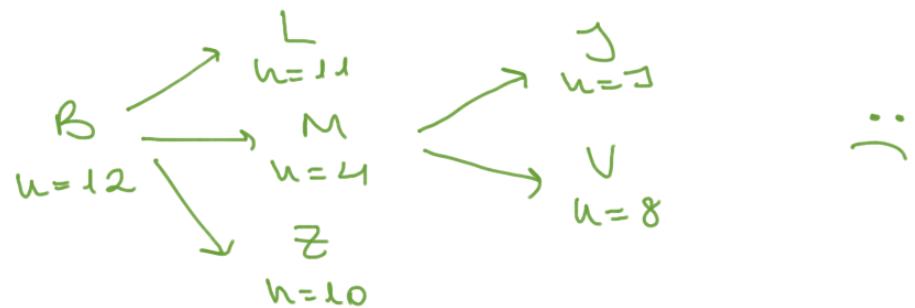
Coste de la solución: 12

• Secuencia nodos: $B, (L), M, (Z), (J), (V)$

a. Escalada simple

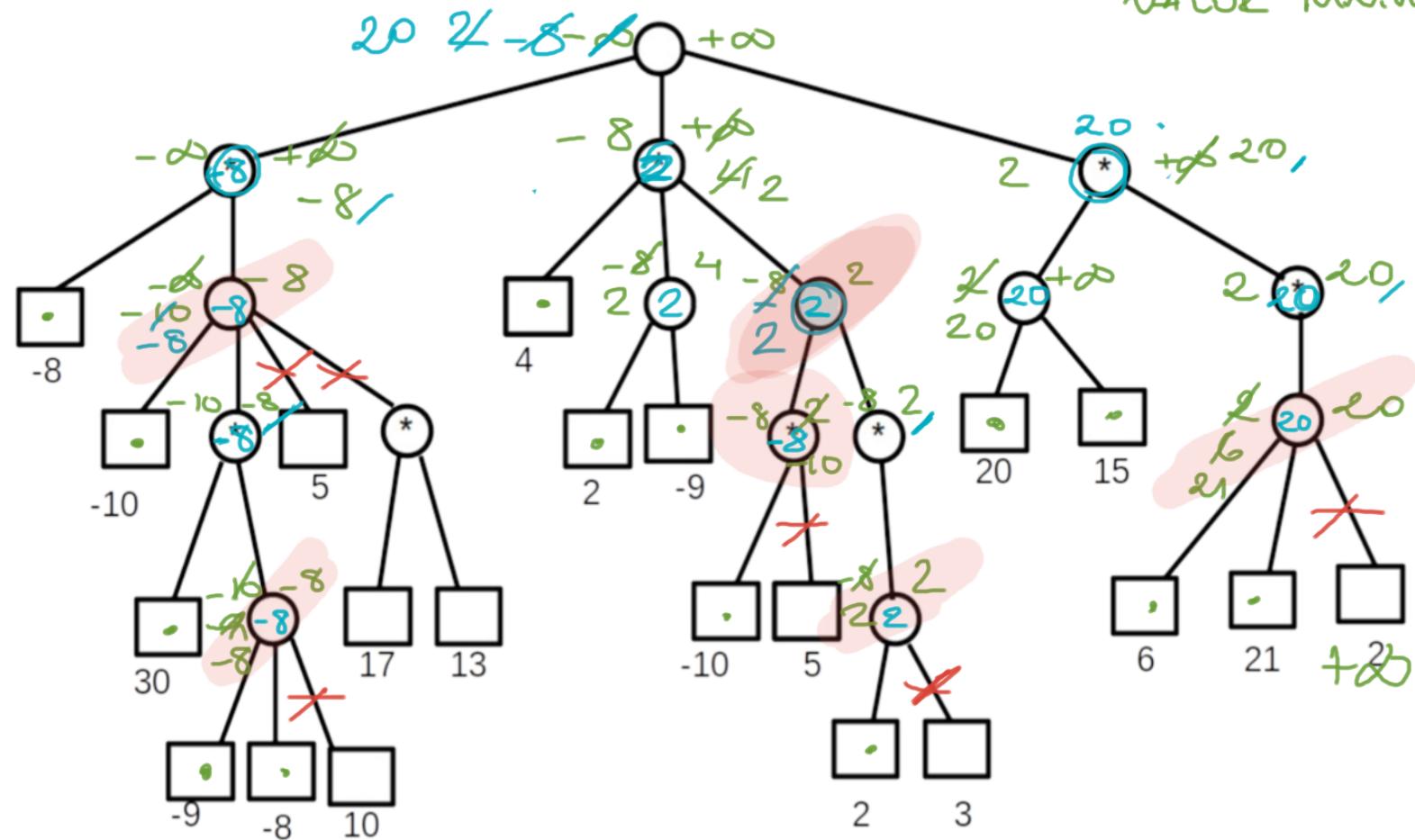


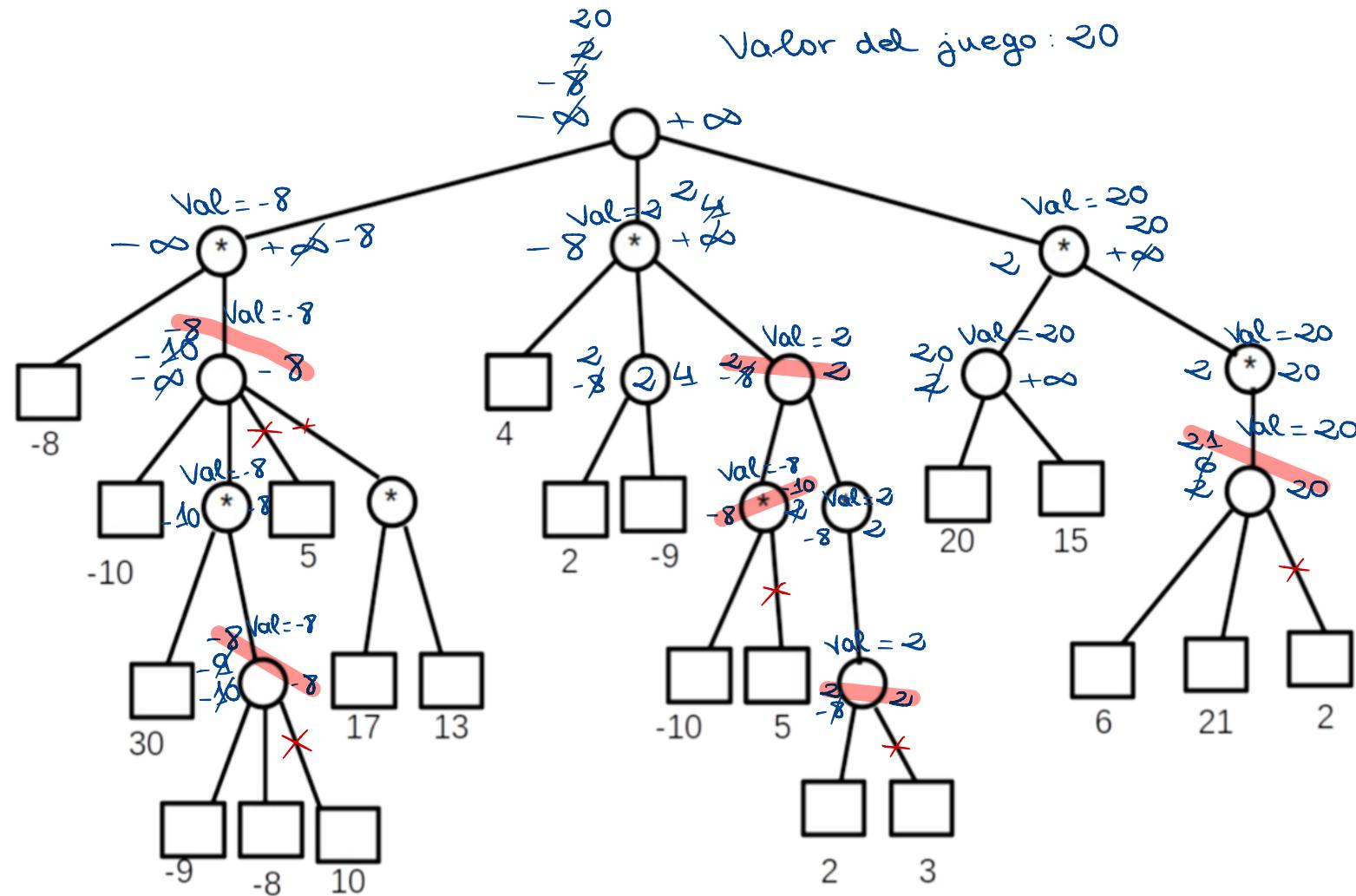
b. Escalada por máxima pendiente



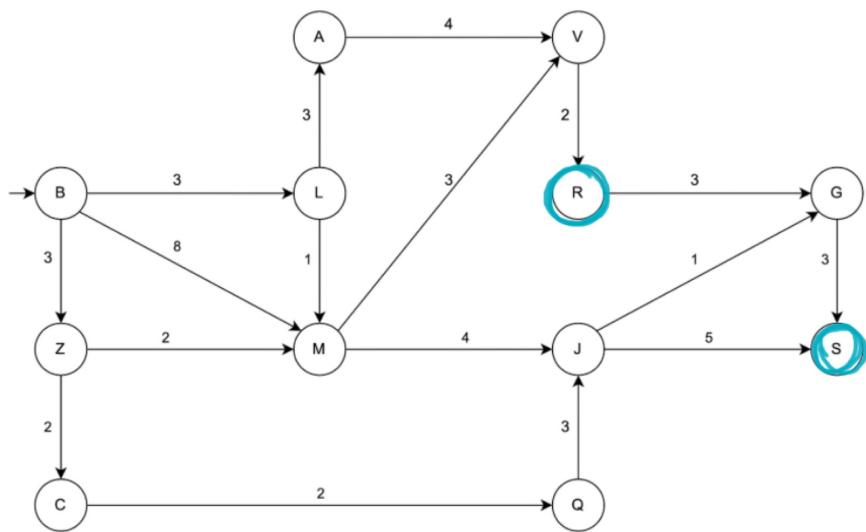
A	B	C	G	J	L	M	Q	R	S	V	Z
9	12	3	8	7	11	4	5	0	0	8	10

value minmax = 20.





* MIN



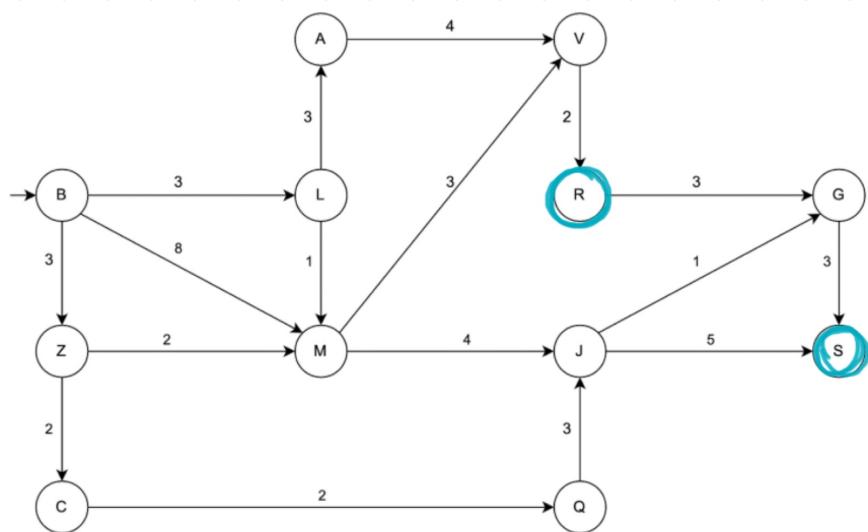
Anchura

ABIERTOS

- (B, Ø)
- (L, Ø)
- (M, Ø)
- (Z, Ø)
- (A, Ø)
- (J, Ø)
- (V, Ø)
- (C, Ø)
- (G, Ø)
- (S, Ø)

CERRADOS

- (B, Ø)
- (L, B)
- (M, B)
- (Z, B)
- (A, B)
- (J, B)
- (V, B)
- (C, B)
- (G, B)
- (S, B)



Coste uniforme

B → L → M → V → R

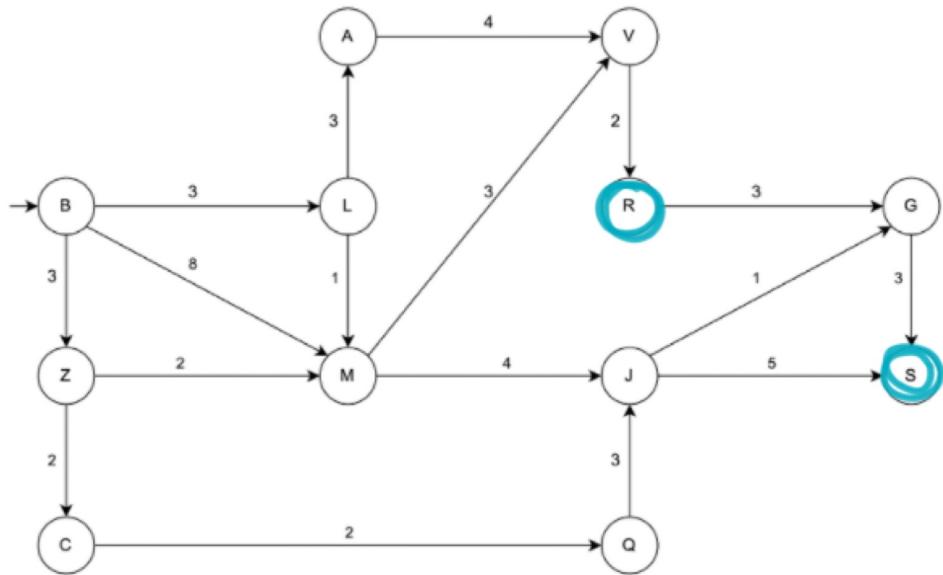
ABIERTOS

- (B, Ø, 0)
- (L, B, 3)
- (M, B, 8) [red bracket]
- (Z, B, 3)
- (A, L, 4) [green bracket]
- (J, Z, 5) [green bracket]
- (C, Z, 5)
- (V, M, 7) [red bracket]
- (J, M, 8) [red bracket]
- (Q, C, 7) [red bracket]
- (V, N, 10) [red bracket]
- (R, V, 9)
- (J, Q, 10) [green bracket]
- (G, J, 9)
- (S, J, 13)

CERRADOS

- (B, Ø, 0)
- (L, B, 3)
- (Z, B, 3)
- (M, L, 4)
- (C, Z, 5)
- (A, L, 6)
- (V, M, 7)
- (Q, C, 7)
- (J, M, 8)
- (R, V, 9)

(R, V, 9)



A	B	C	G	J	L	M	Q	R	S	V	Z
9	12	3	8	7	11	4	5	0	0	8	10

¿ Monótona?

$$h(P) - h(H) \leq C(P, H) \quad \forall P, H \text{ nodos}$$

↓ ↓
Padre Hijo

$h(J) - h(S) = 7 \neq 5 \implies$ No es monótona. Hay que revisar cerrados

$h(V) \leq h^*(V) \implies$ Tampoco, $8 \neq 2 \implies$ No es admisible

ABIERTOS

- (B, 0, 0, 12, 12)
- (L, B, 3, 11, 14)
- (M, B, 8, 4, 12)
- (Z, B, 3, 10, 13)
- (V, M, 11, 8, 19) (V, M, 8, 8, 16) (V, M, 7, 8, 15)
- (J, M, 12, 7, 19) (J, M, 9, 7, 16) (J, N, 8, 7, 15)
- (C, Z, 5, 3, 8)
- (Q, C, 7, 5, 12)
- (J, Q, 10, 7, 17)
- (A, L, 6, 9, 15)
- (V, A, 10, 8, 18)
- (G, J, 9, 8, 17)
- (S, J, 13, 0, 13)

CERRADOS

- (B, 0, 0, 12, 12)
- (M, B, 8, 4, 12) (M, L, 4, 4, 8)
- (Z, B, 3, 10, 13)
- (C, Z, 5, 3, 8)
- (Q, C, 7, 5, 12)
- (L, B, 3, 11, 14)
- (A, L, 6, 9, 15)
- (J, M, 8, 7, 15)
- (S, J, 13, 0, 13)