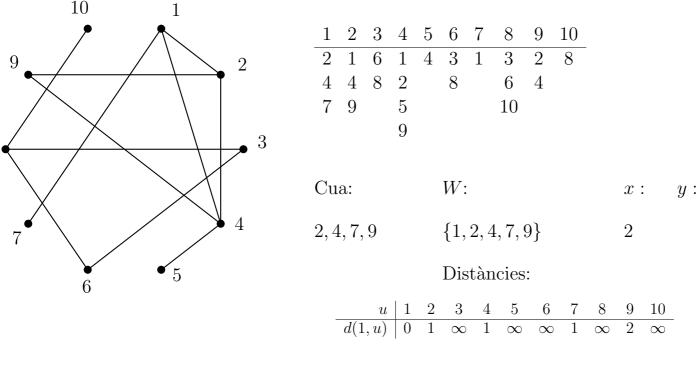
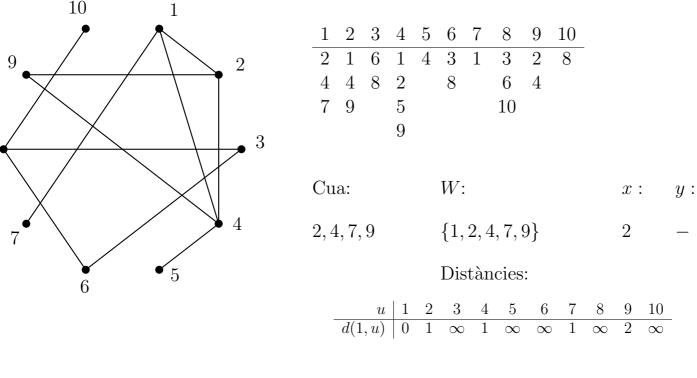
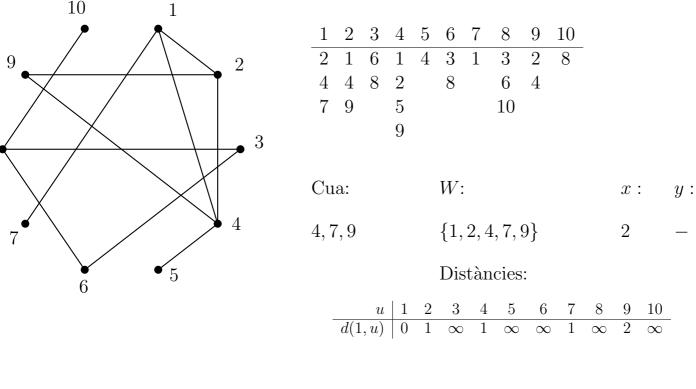


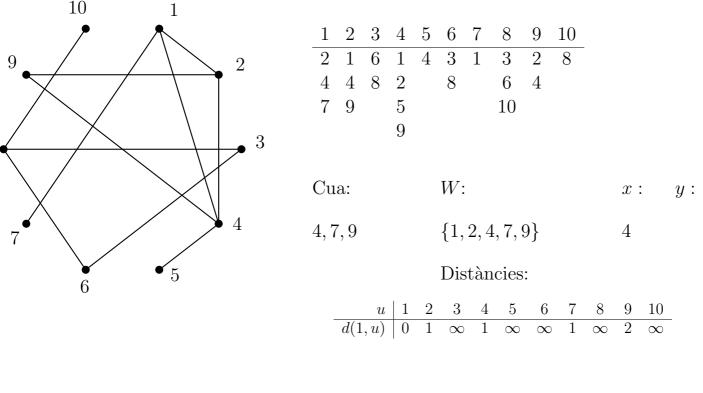
y:

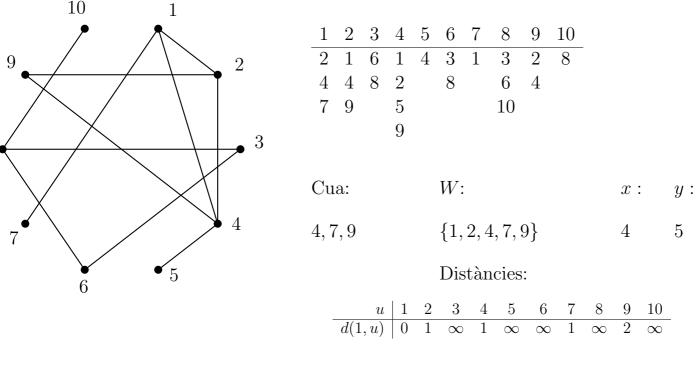
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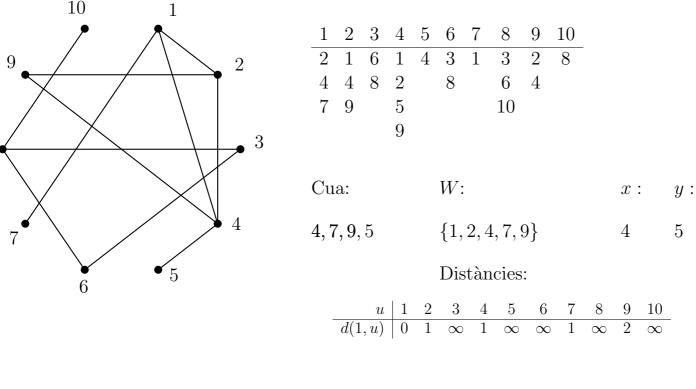


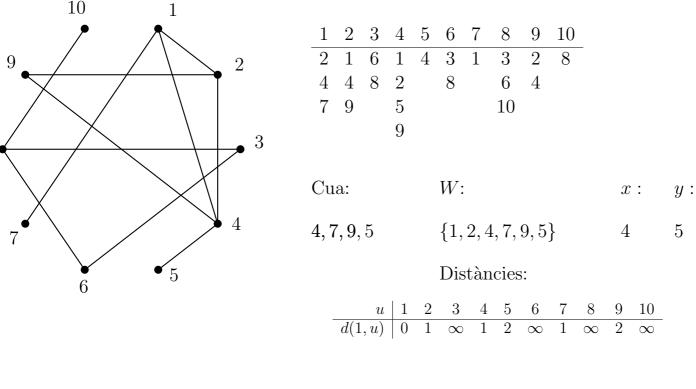


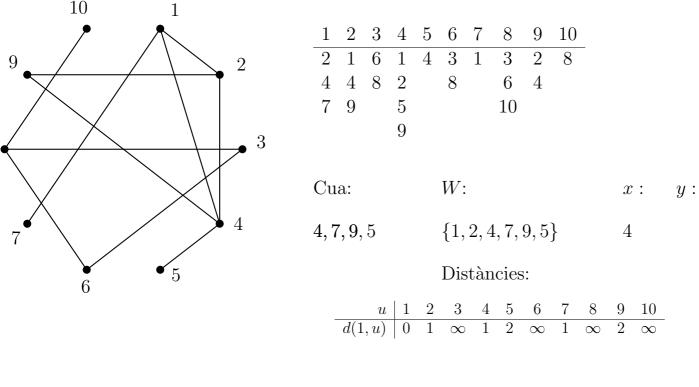


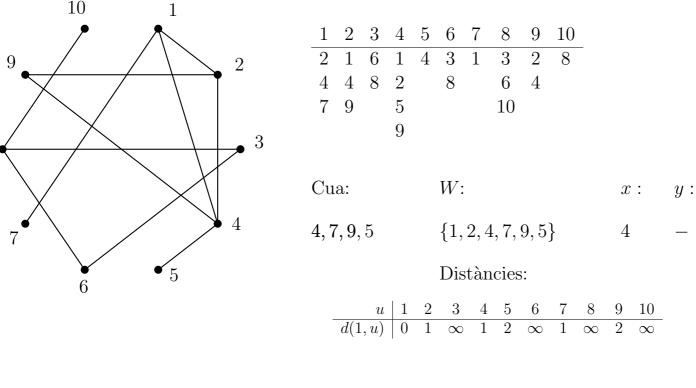


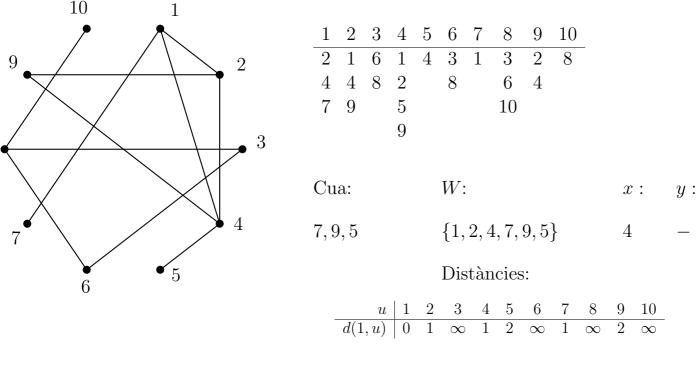


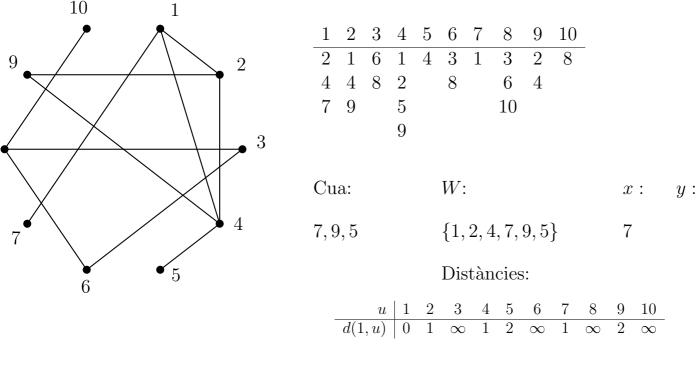


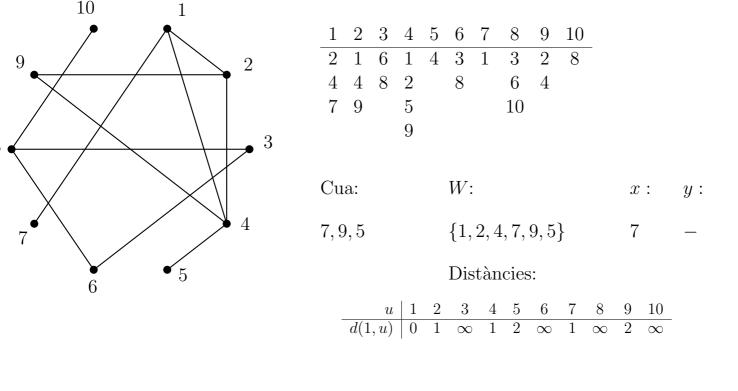


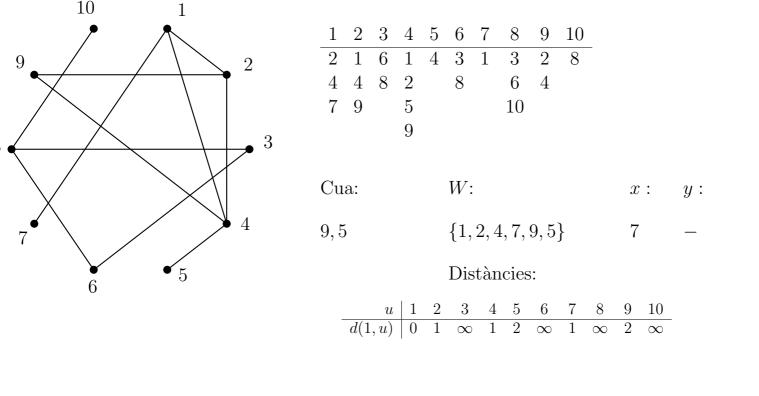


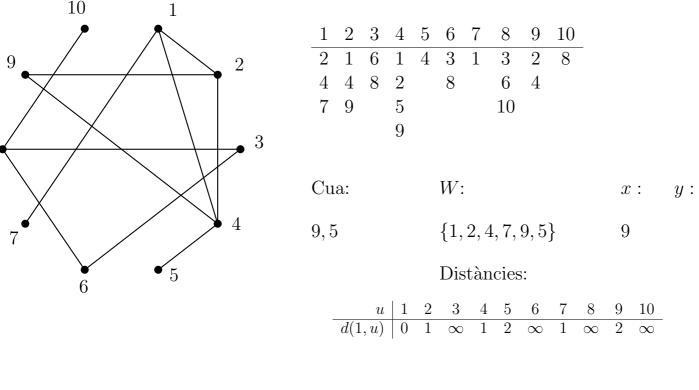


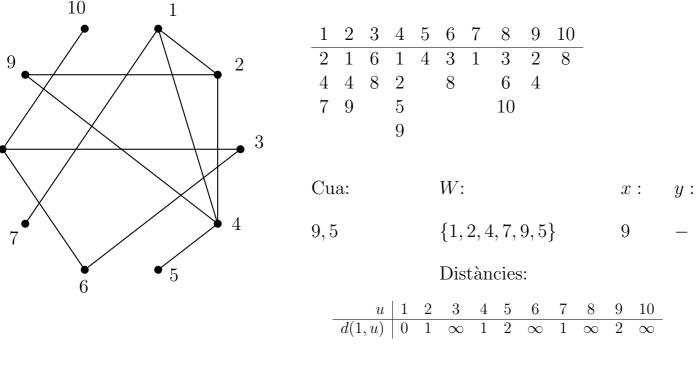


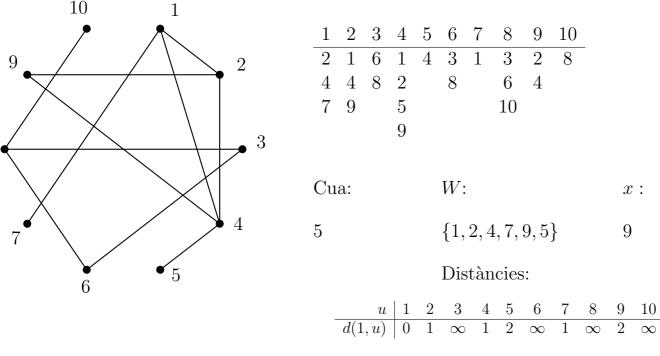


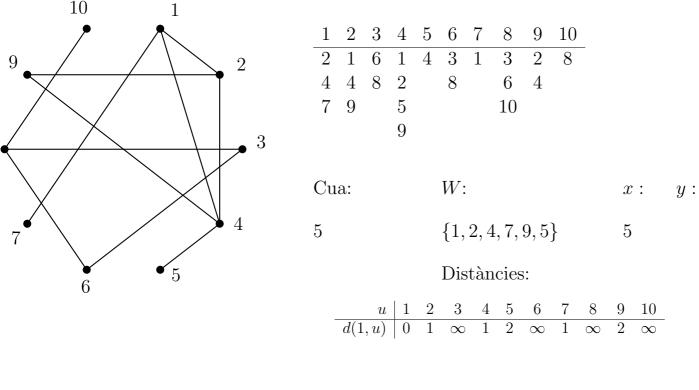


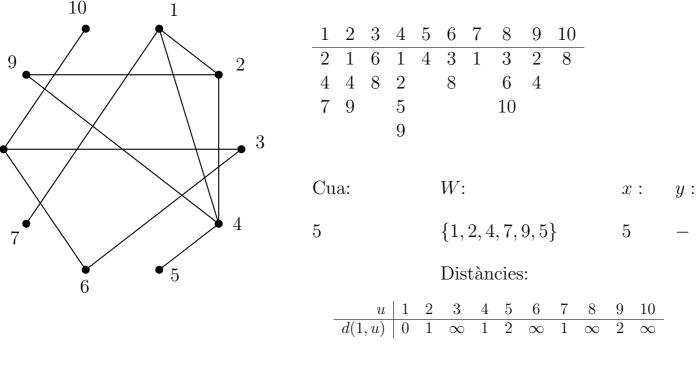


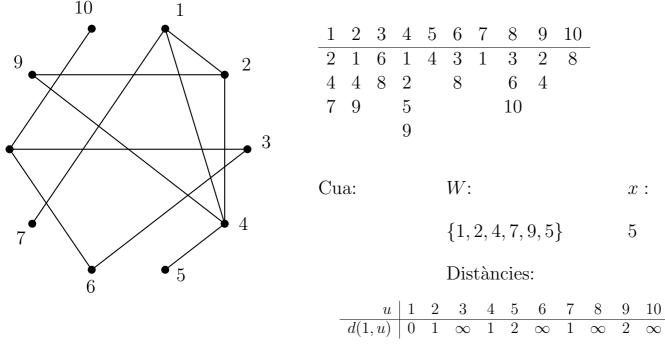


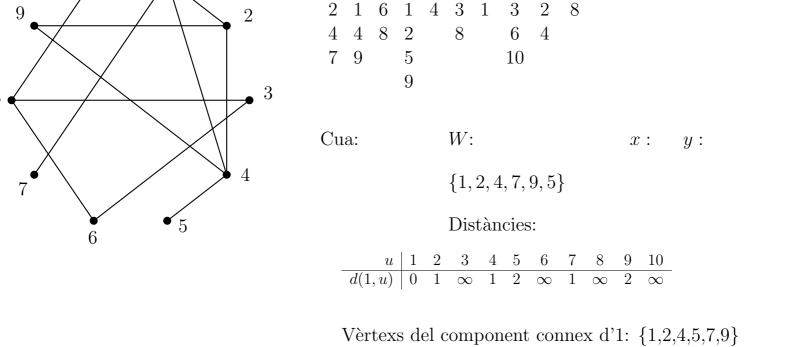




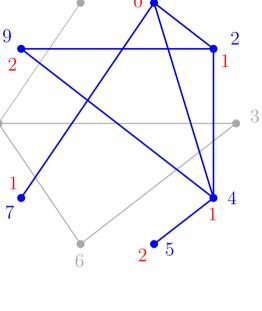








2 3 4 5 6 7 8 9 10

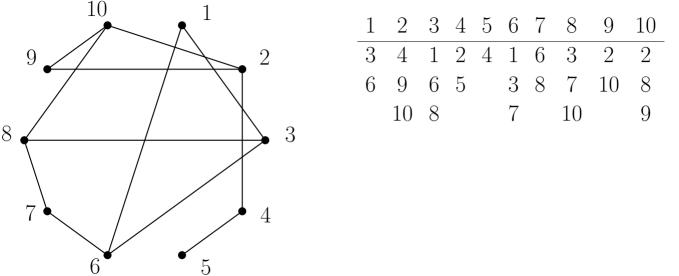


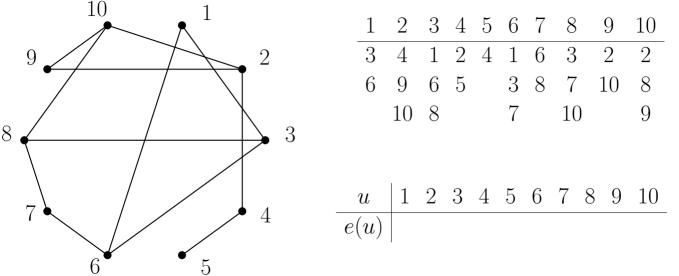
Distàncies d'1 a la resta de vèrtexs: $u \mid 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9 \quad 10$

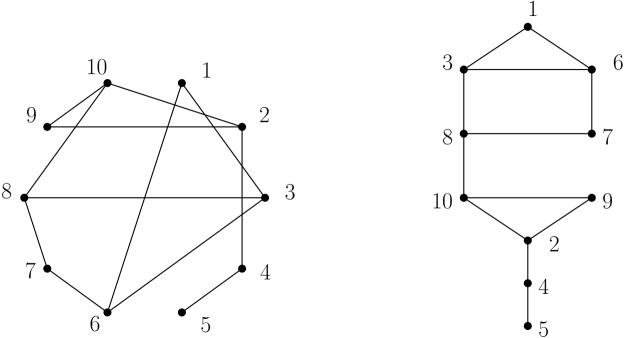
Vèrtexs del component connex d'1: {1,2,4,5,7,9}

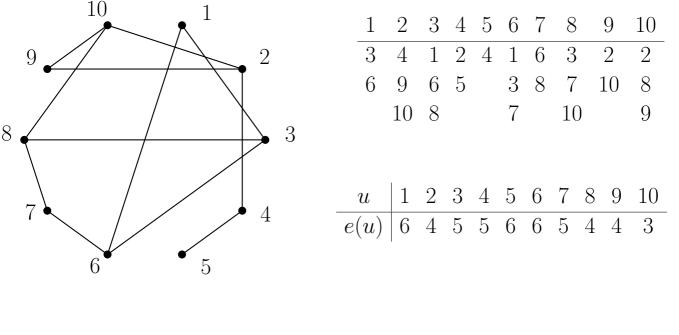
Component connex d'1: vèrtexs i arestes en blau

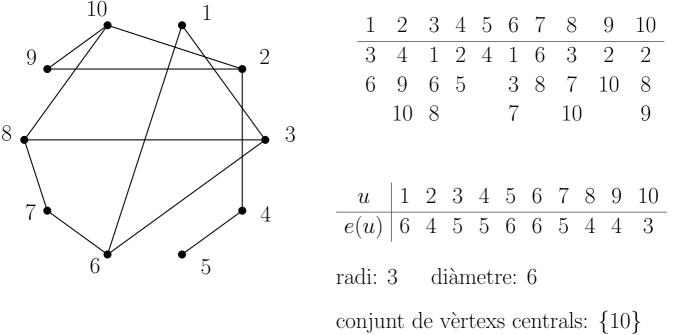
El graf NO és connex perquè el cc d'1 és diferent del conjunt de vèrtexs (no hi ha cap cam d'1 als vèrtexs 3, 6, 8, 10). L'excentricitat d'1 és ∞ (de fet, tots els vèrtexs tenen excentricitat ∞). Per tant, tant el radi com el diàmetre és ∞ .

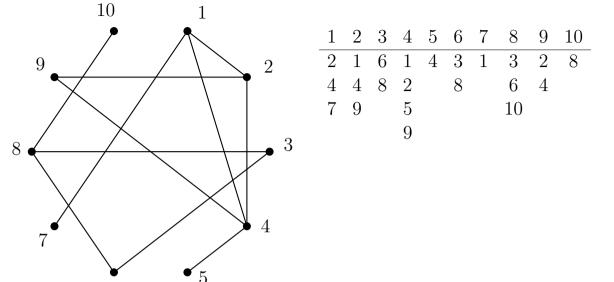


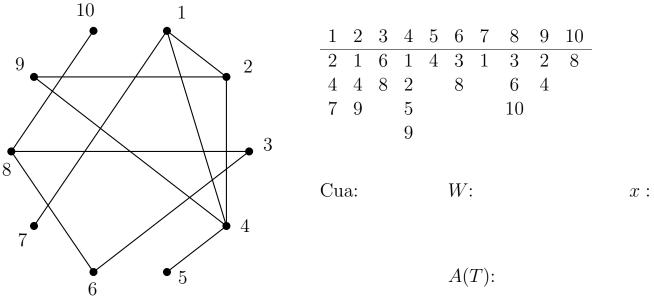


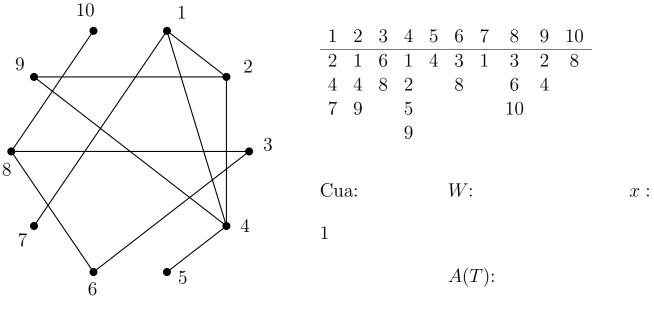


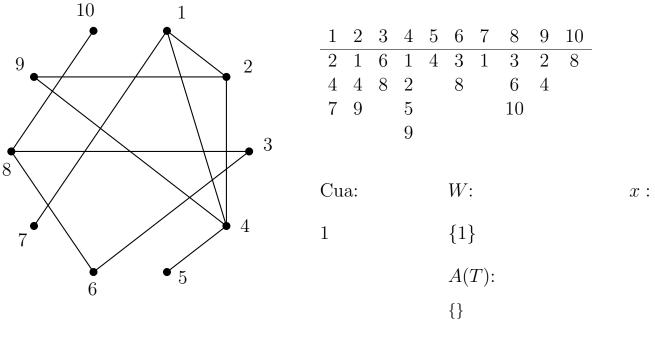


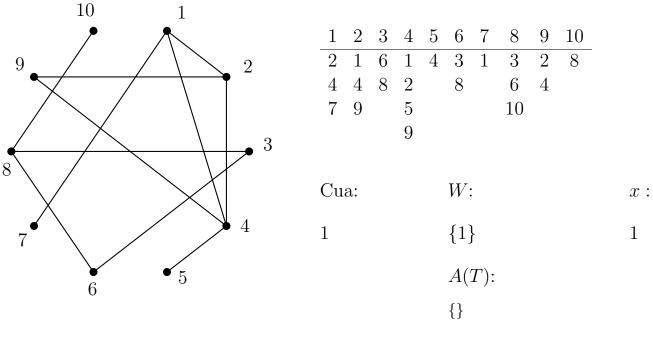


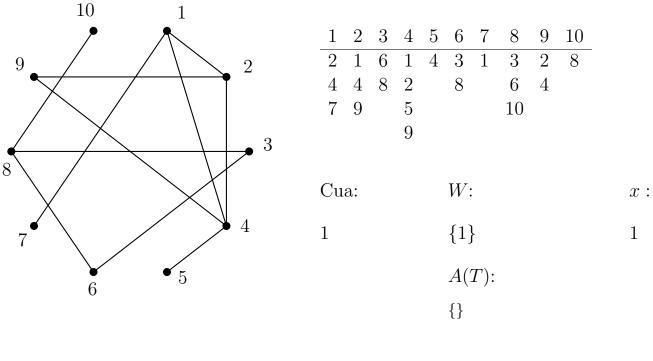


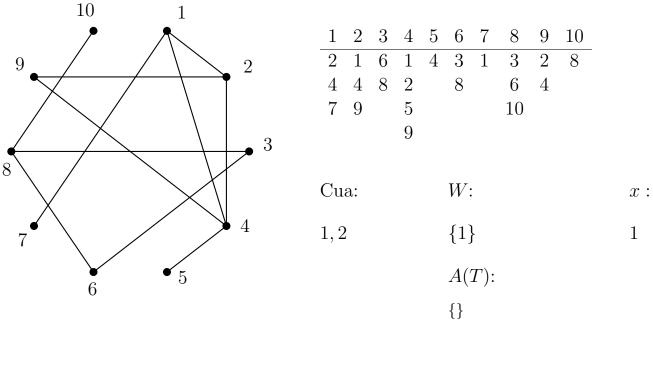


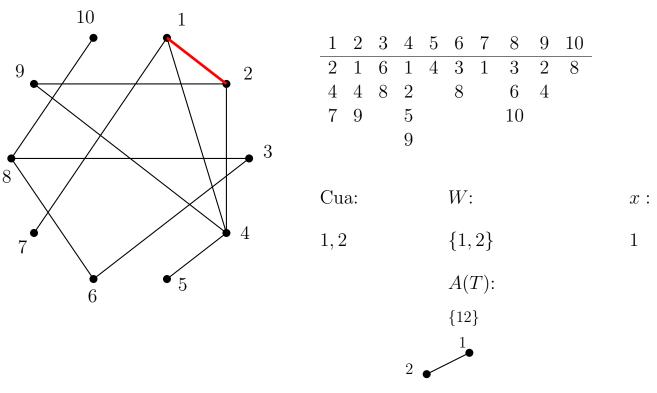


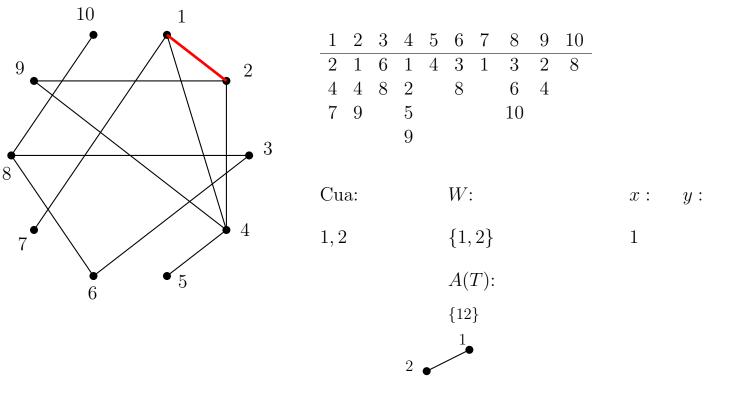


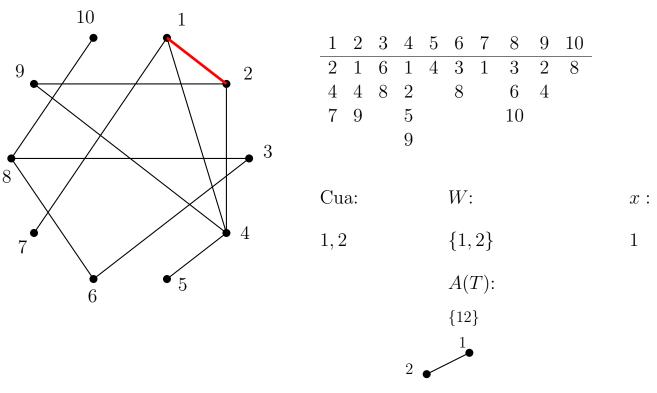


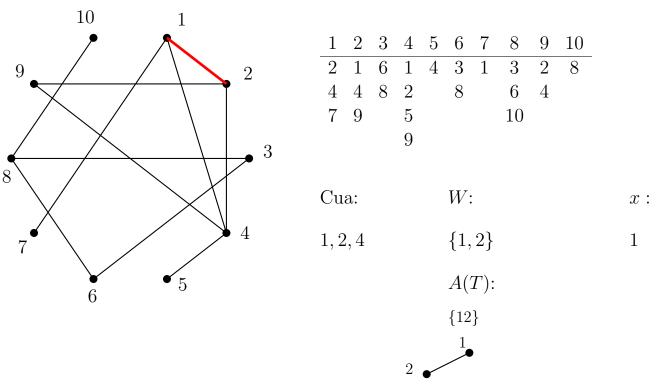


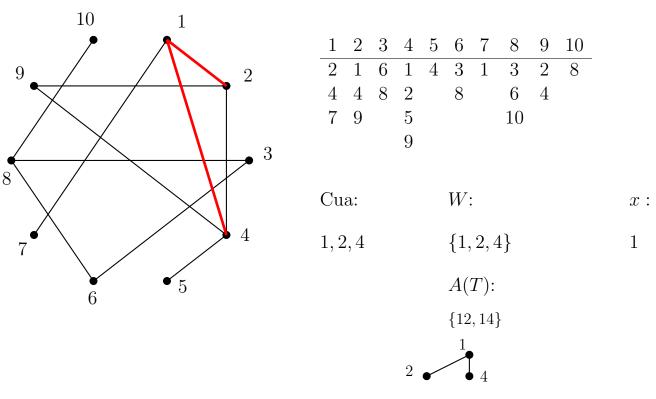


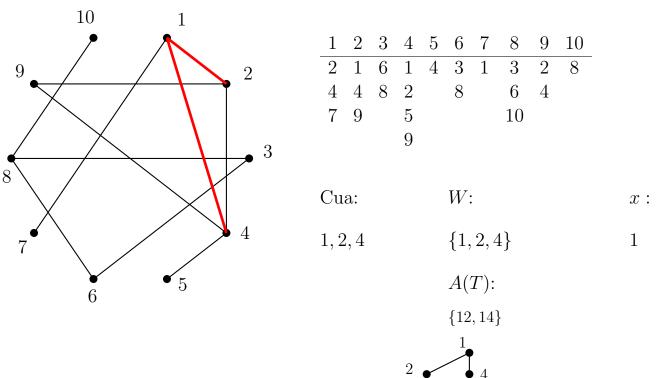


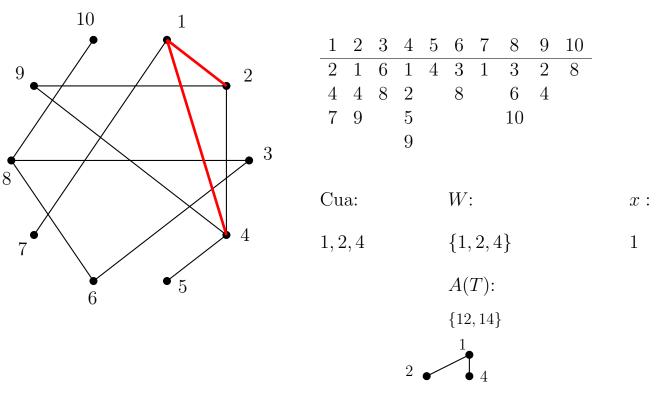


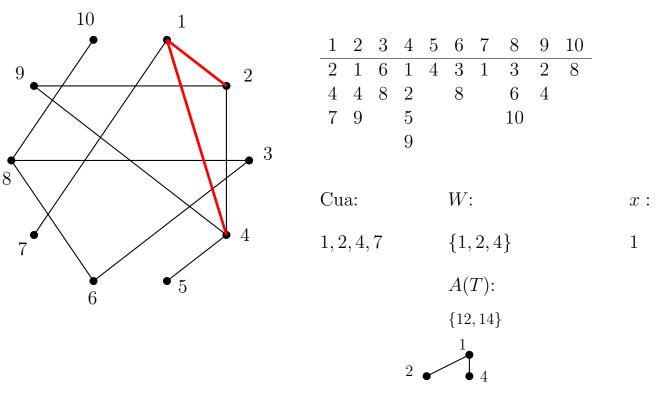


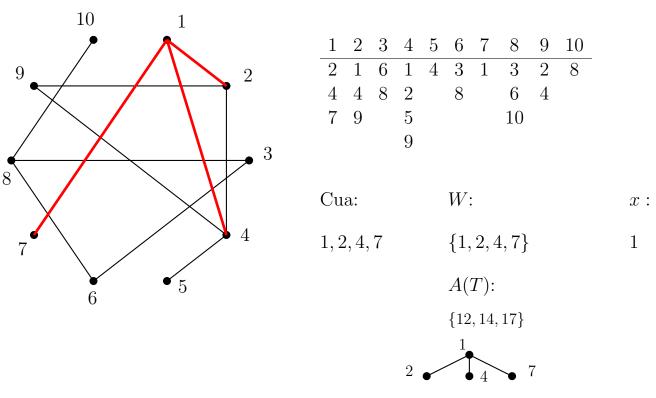


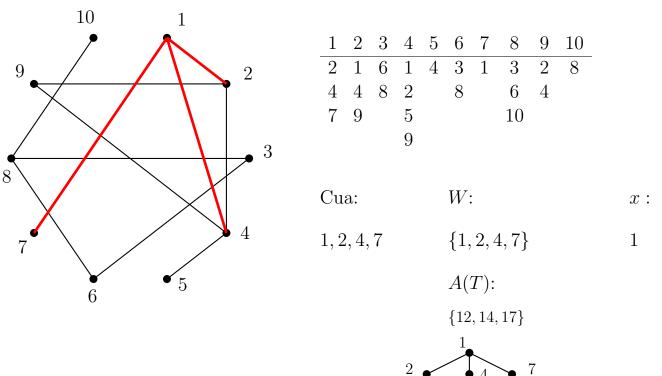


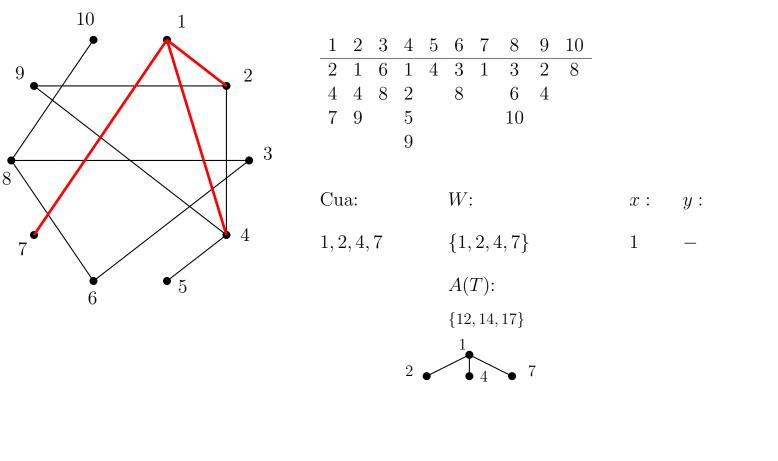


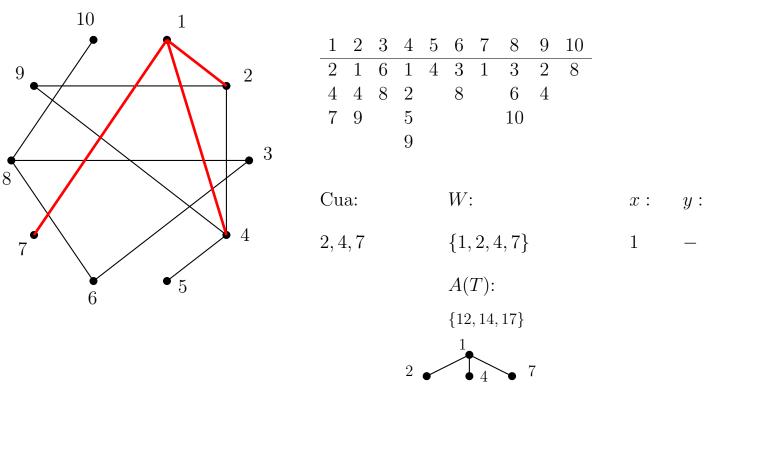


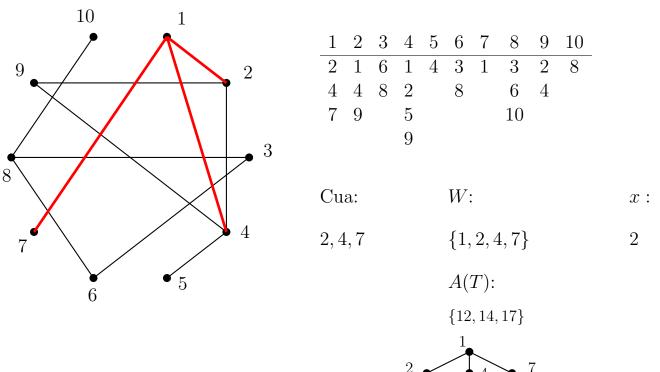


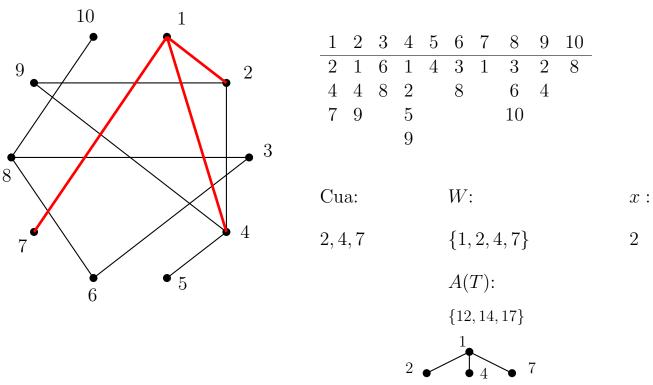


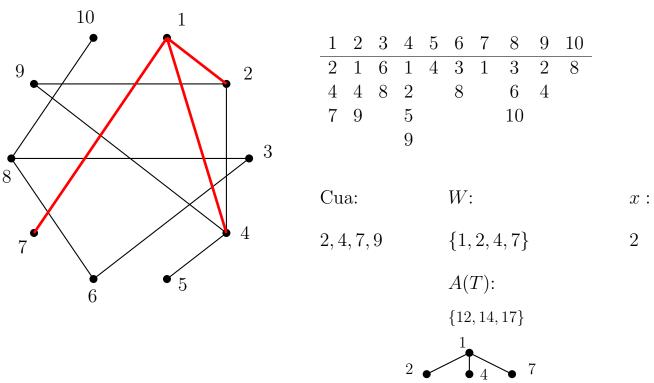


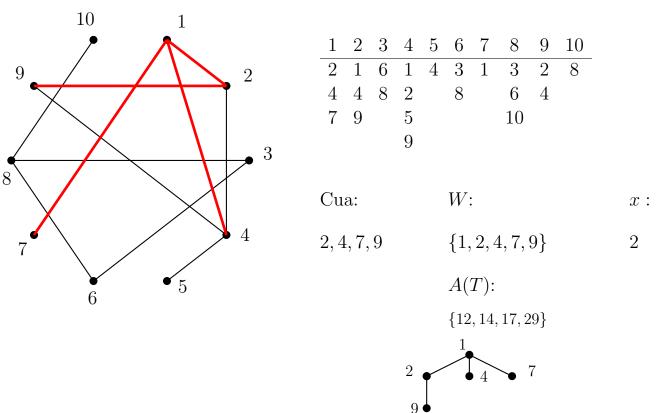


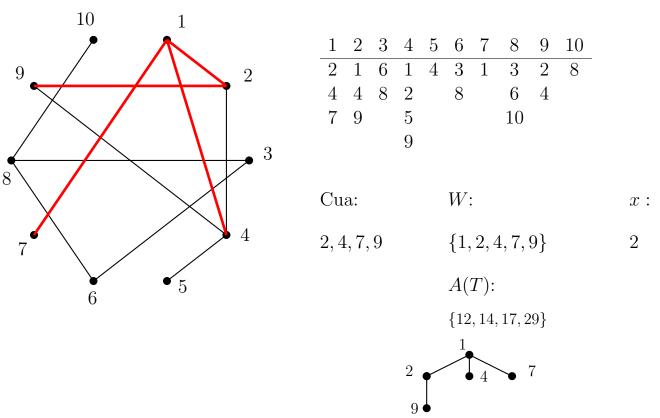


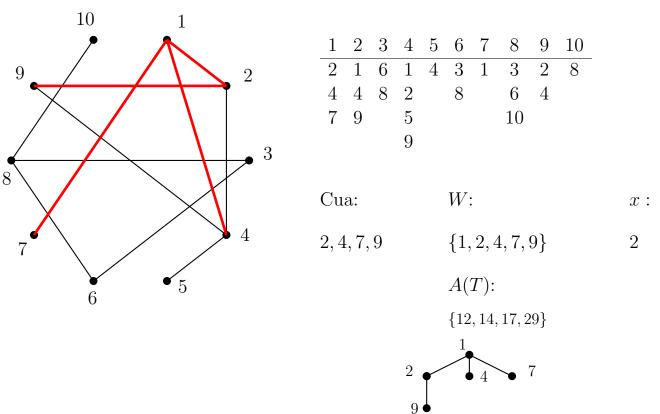


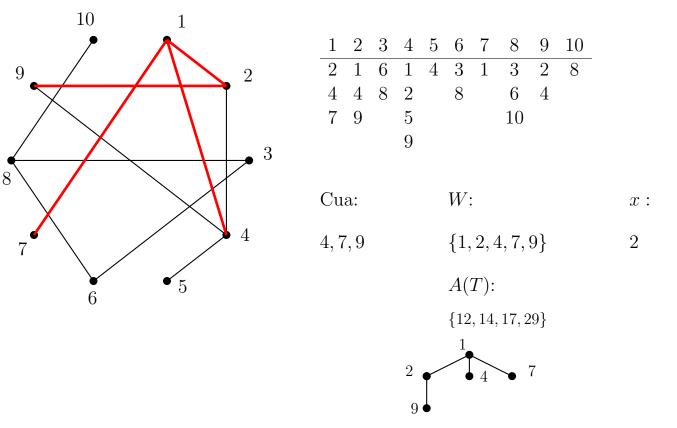


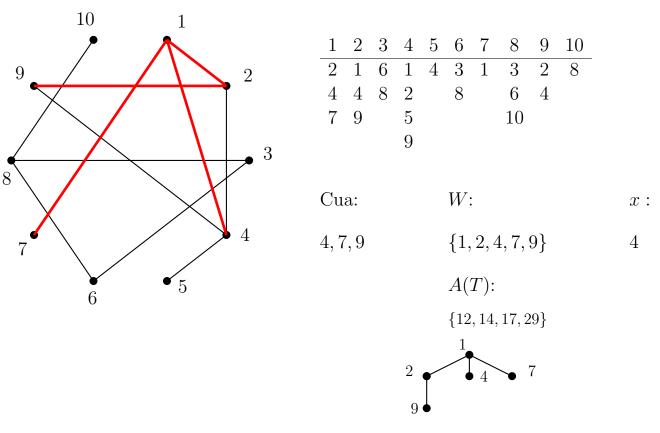


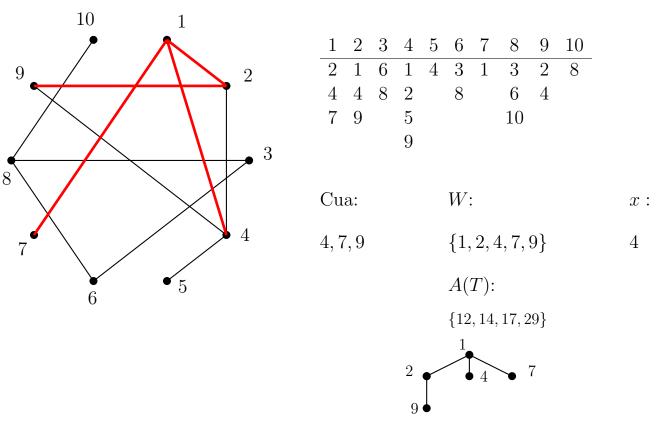


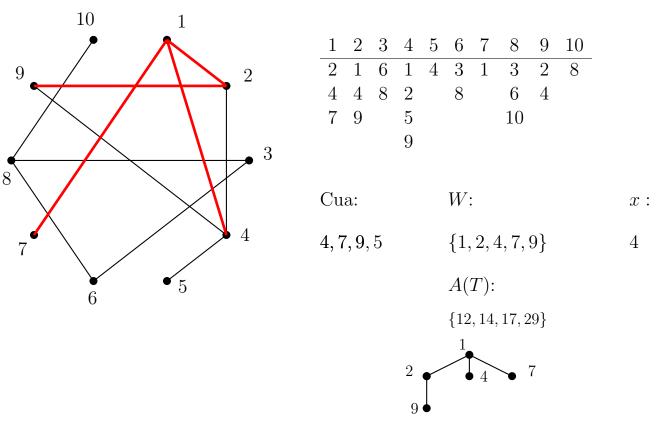


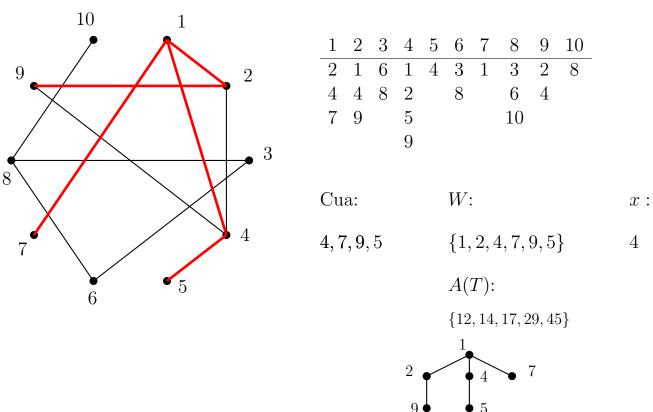


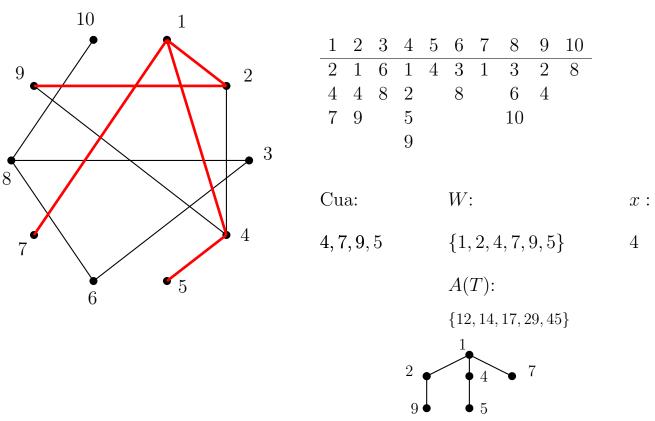


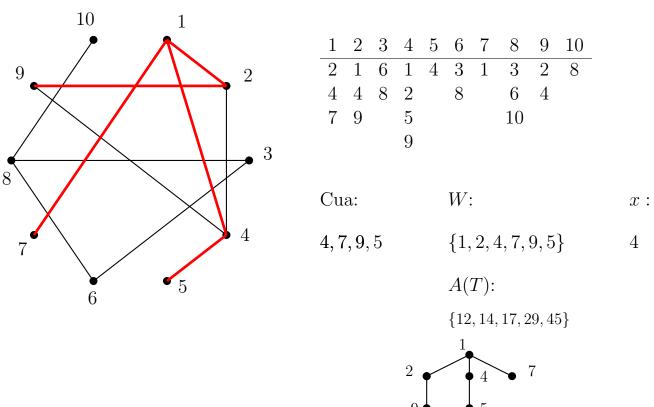


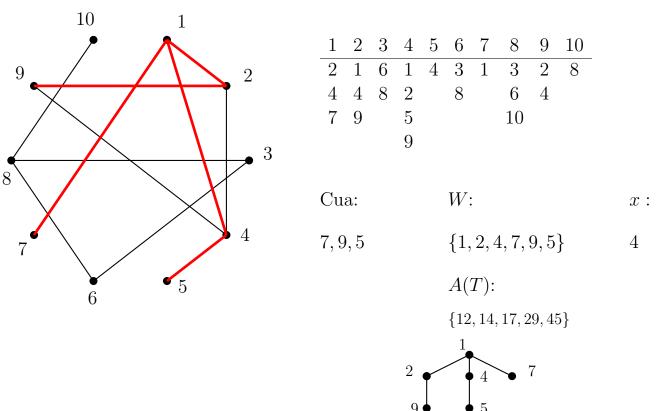


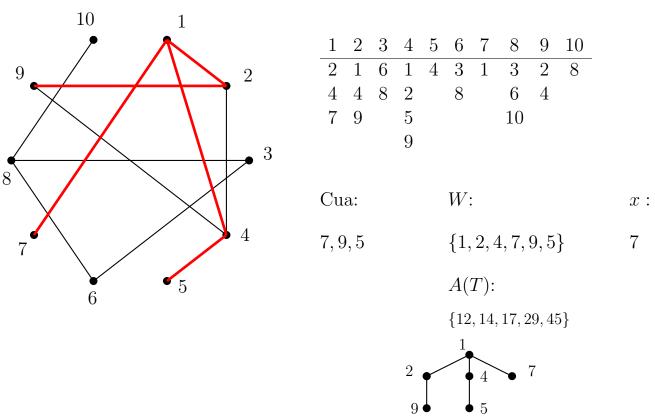


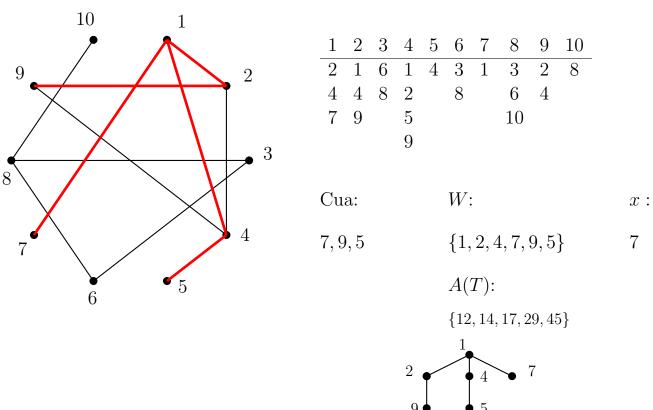


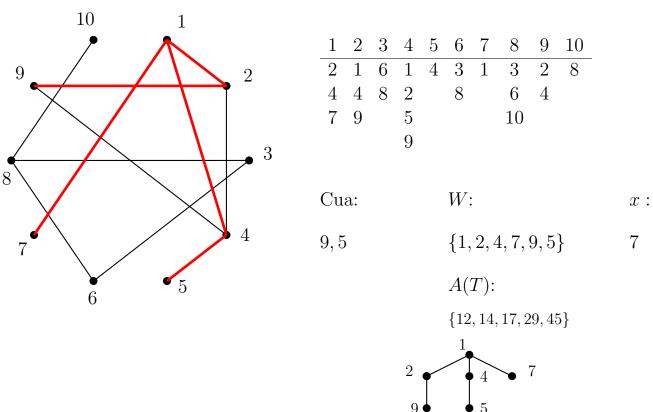


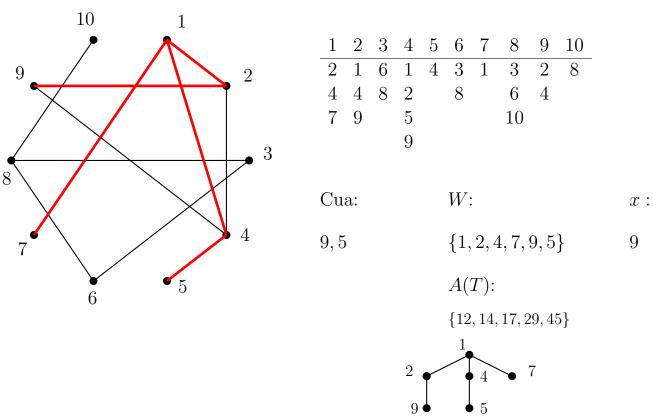


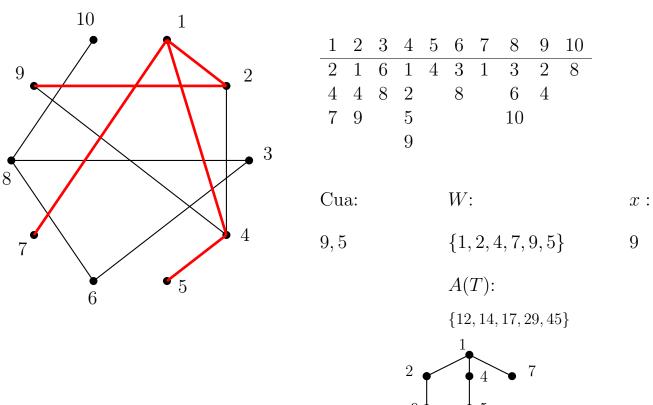


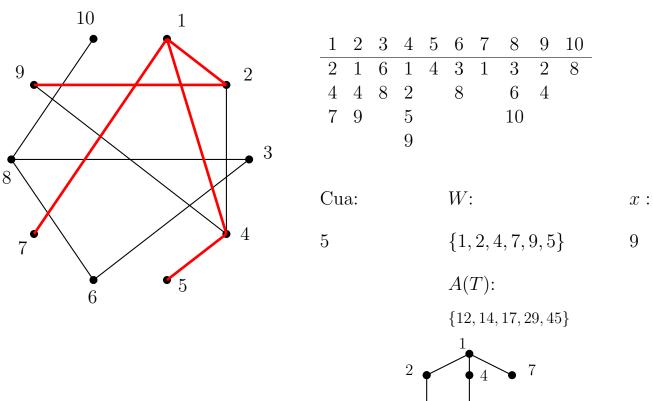


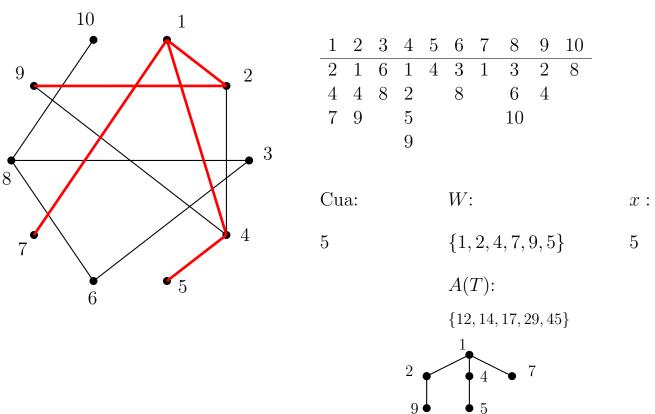


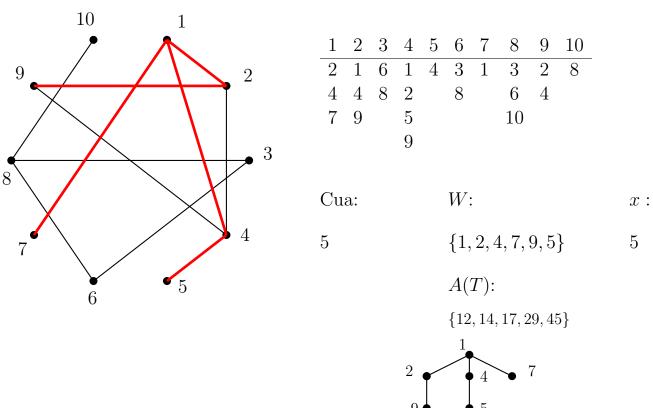


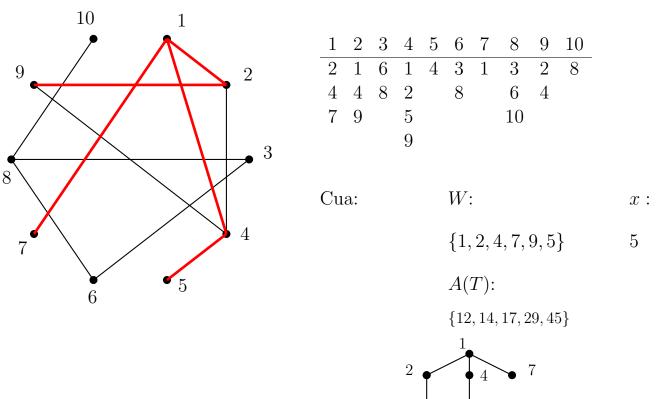


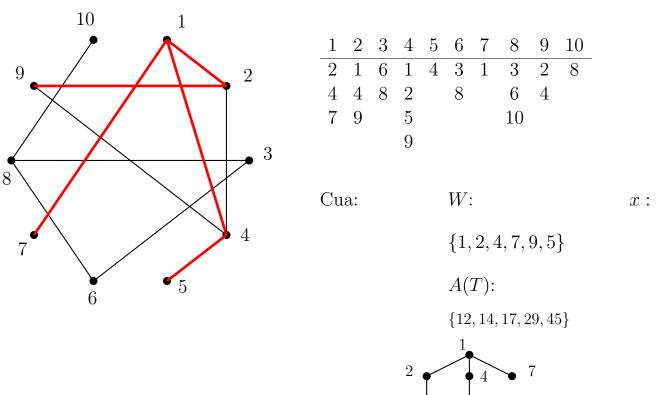


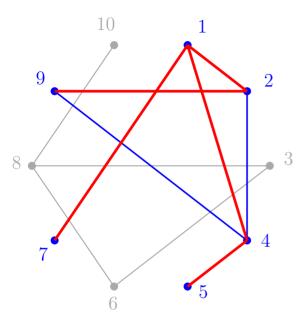








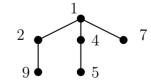


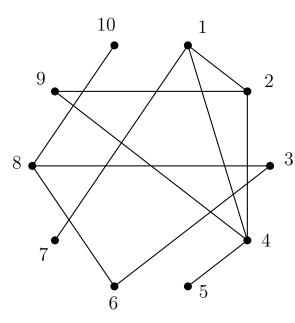


1	2	3	4	5	6	7	8	9	10
2	1	6	1	4	3	1	3	2	8
4	4	8	2		8		6	4	
7	9		5				10		
			9						

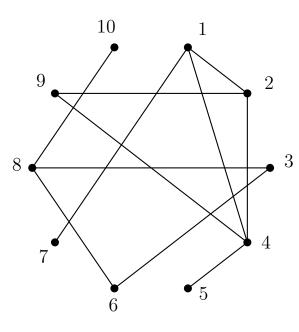
Vèrtexs del component connex d'1: $\{1,2,4,5,7,9\}$ Arestes d'un arbre generador del cc d'1:

$$\{12,\!14,\!17,\!29,\!45\}$$



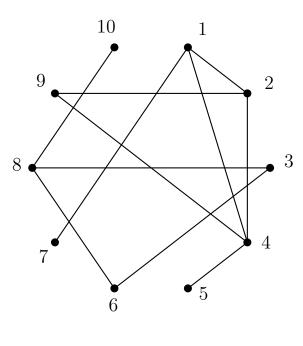


1	2	3	4	5	6	7	8	9	10
2	1	6	1	4	3	1	3	2	8
4	4	8	2		8		6	4	
7	9		5				10		
			9						



1	2	3	4	5	6	7	8	9	10
2	1	6	1	4	3	1	3	2	8
4	4	8	2		8		6	4	
7	9		5				10		
			9						

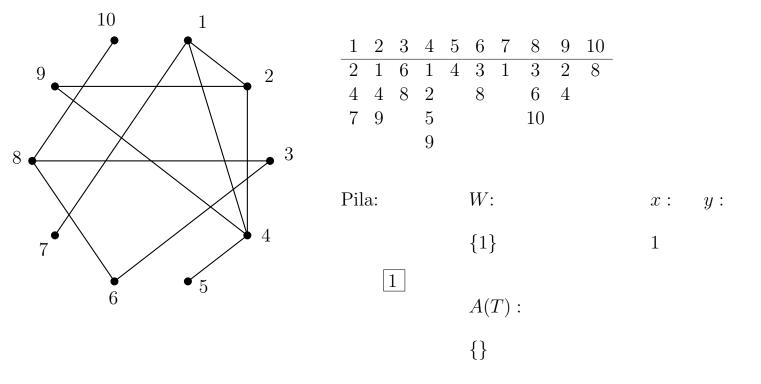
Pila: W: x: y:

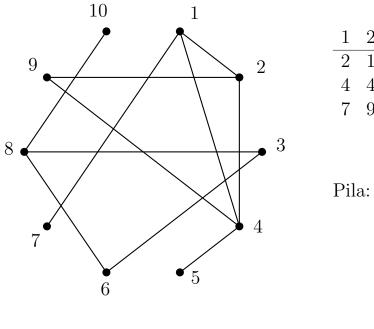


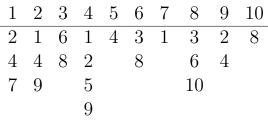
1	2	3	4	5	6	7	8	9	10
2	1	6	1	4	3	1	3	2	8
4	4	8	2		8		6	4	
7	9		5				10		
			9						

Pila: W: $\{1\}$

x: y:







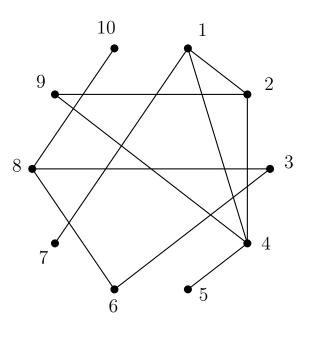
{1}

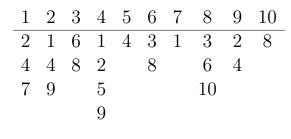
W:

x:

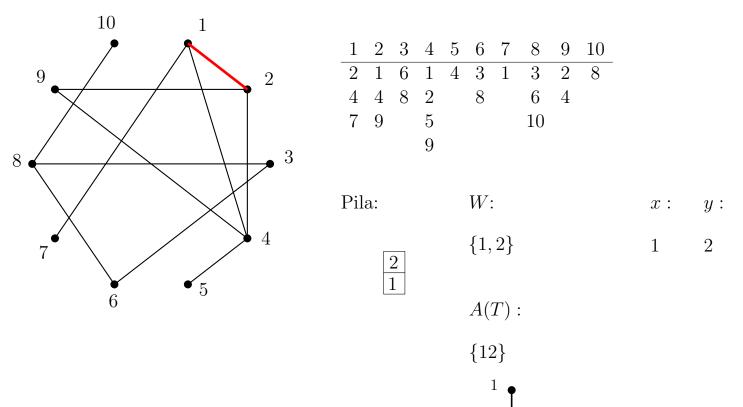
y:

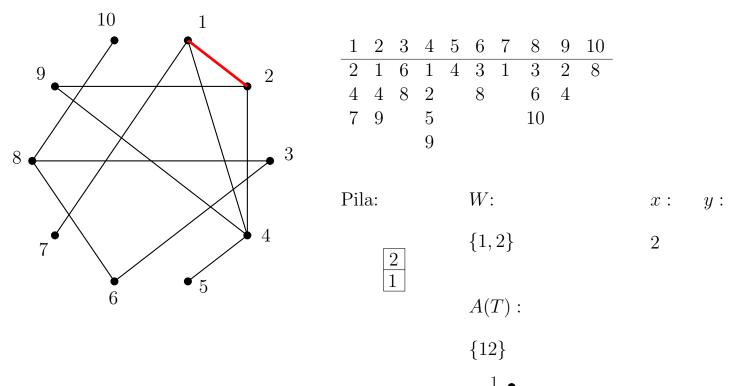
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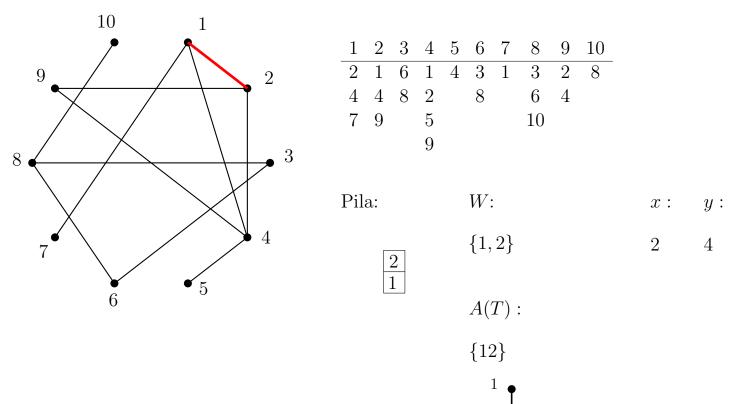


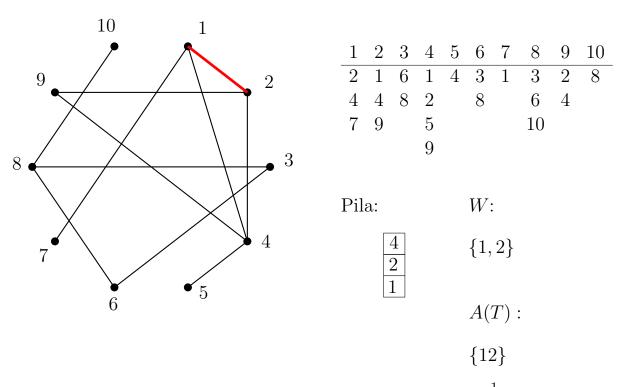


Pila:
$$W$$
: x : y :
$$\{1\}$$
 1 2



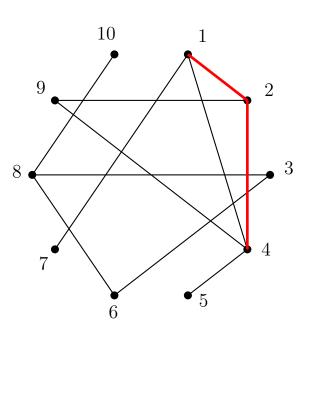


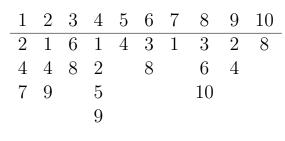


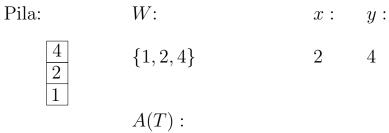


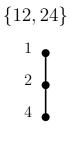
x:

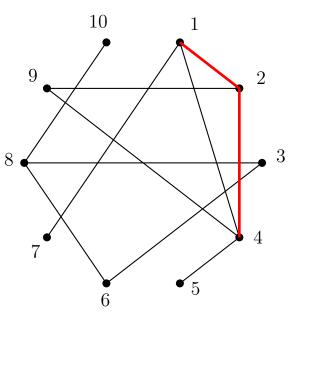
2

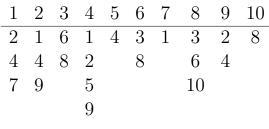


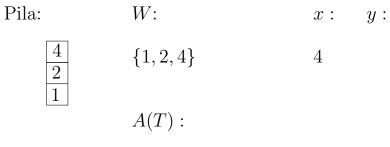






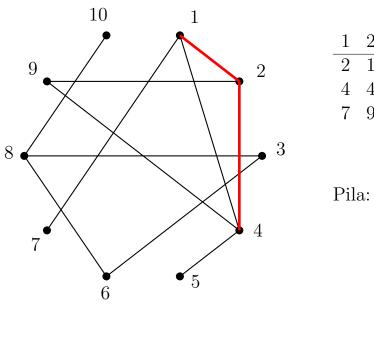


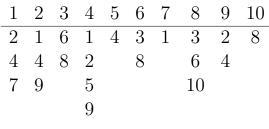


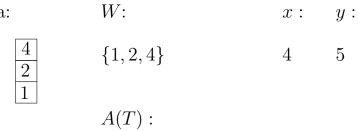


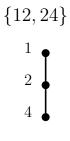
$$\{12, 24\}$$

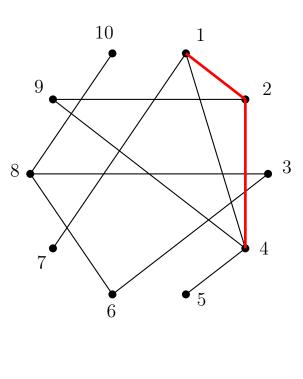
$$\begin{array}{c} 1 \\ 2 \\ 4 \end{array}$$

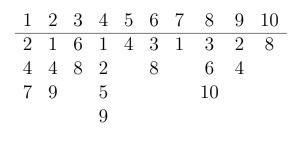


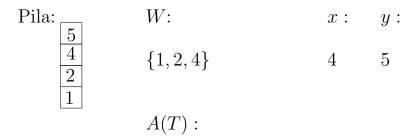


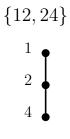


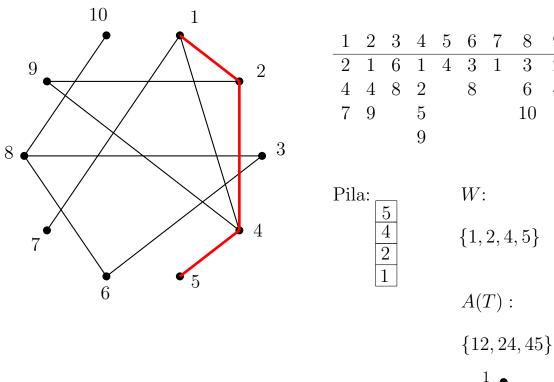


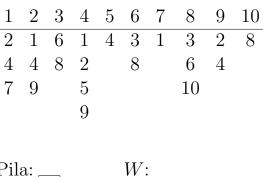


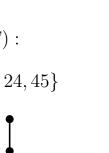






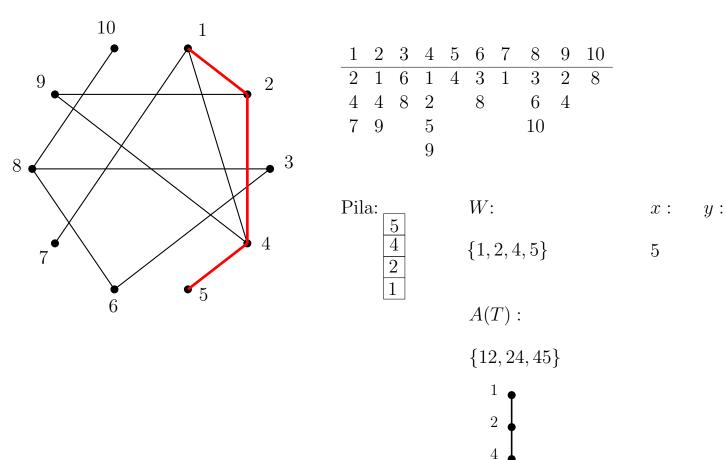


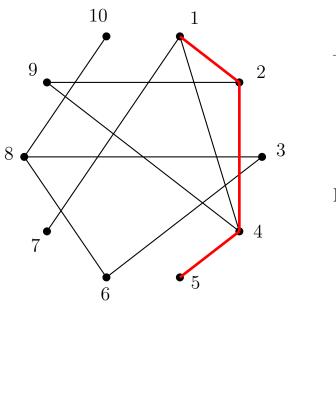


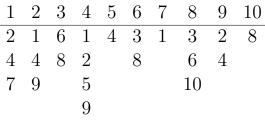


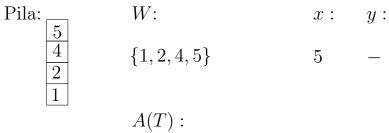
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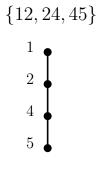
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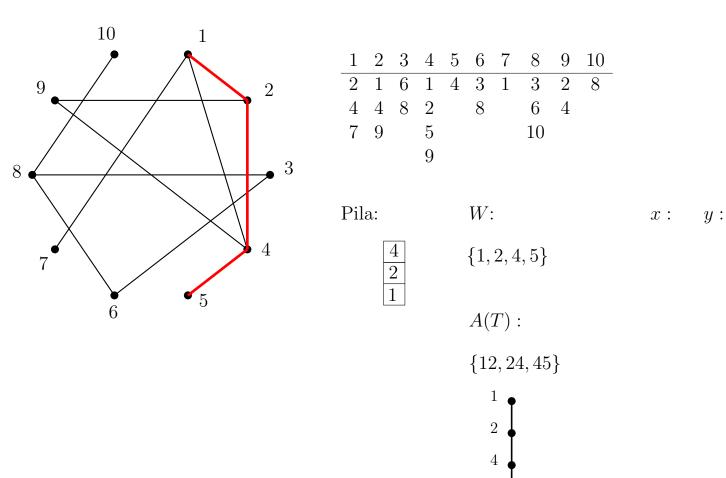


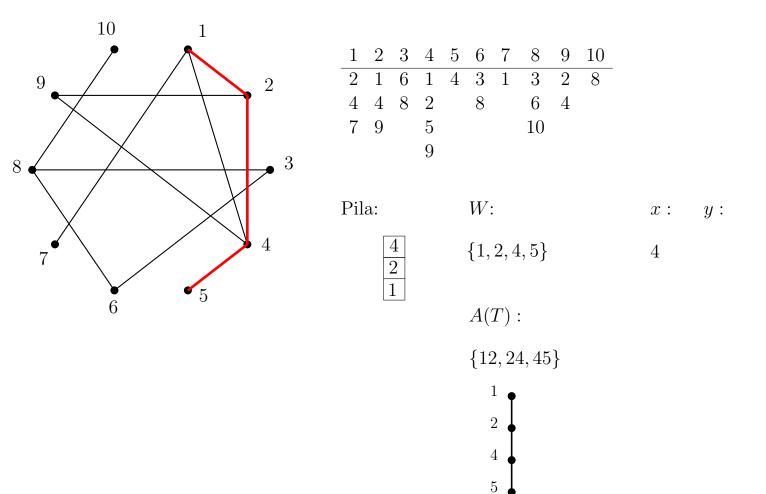


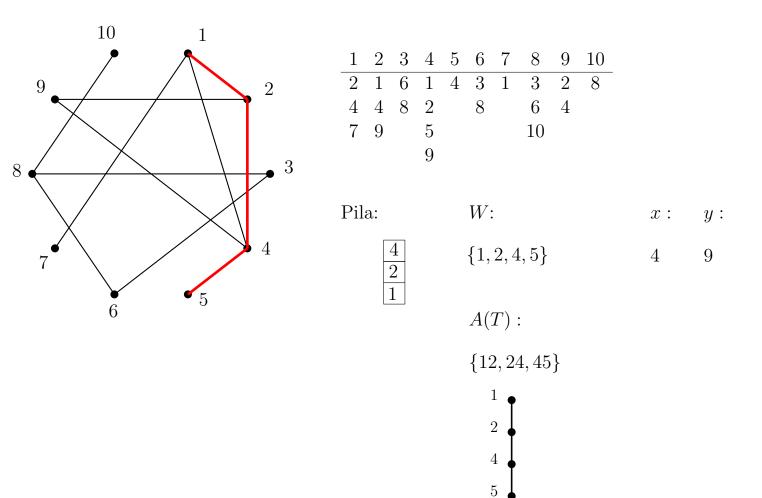


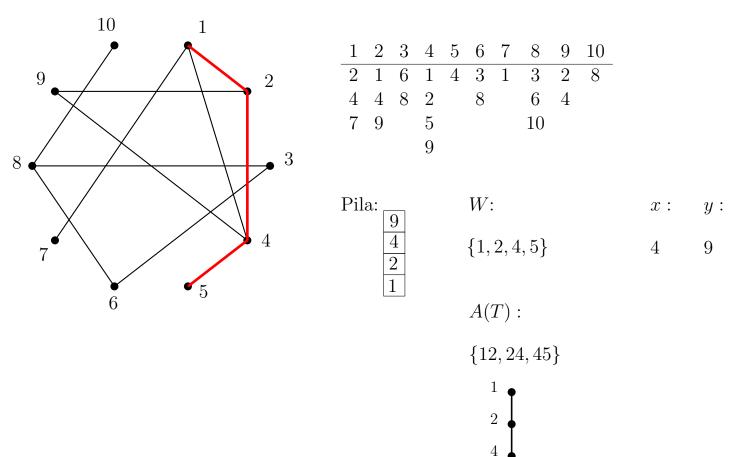


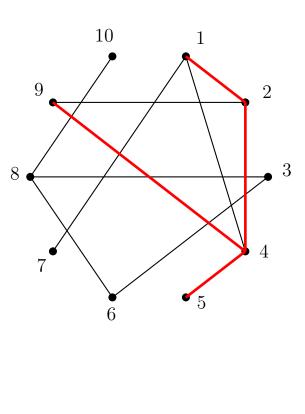


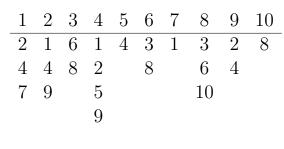






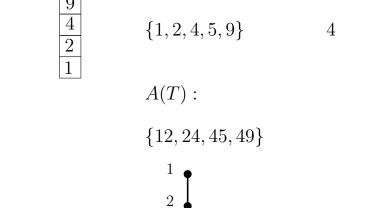






W:

Pila:



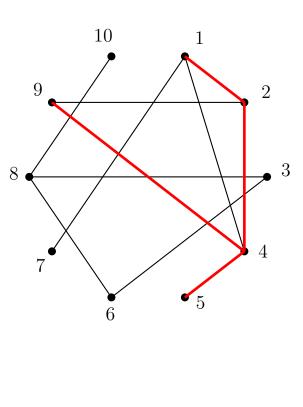
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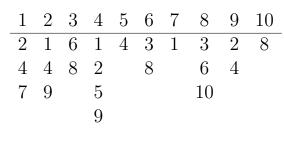
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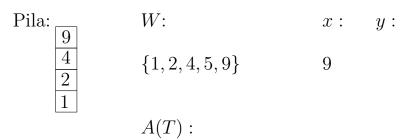
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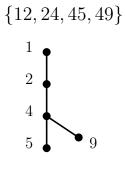
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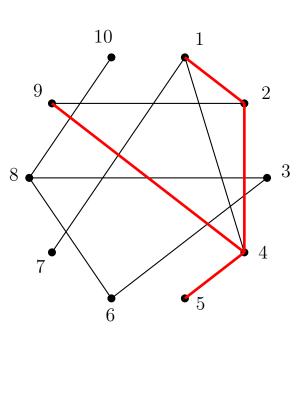
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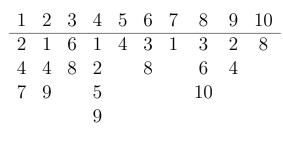


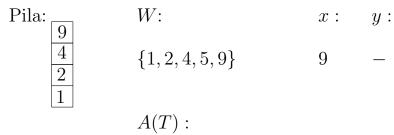


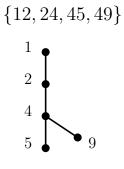


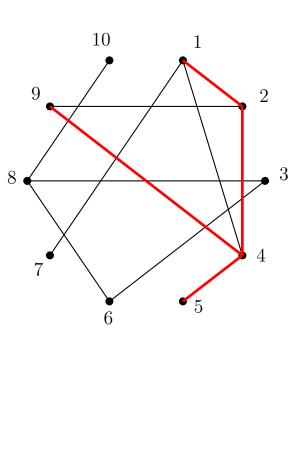


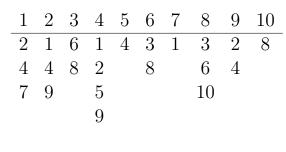


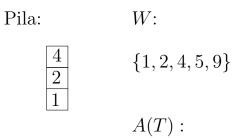


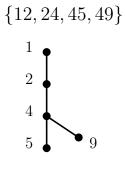


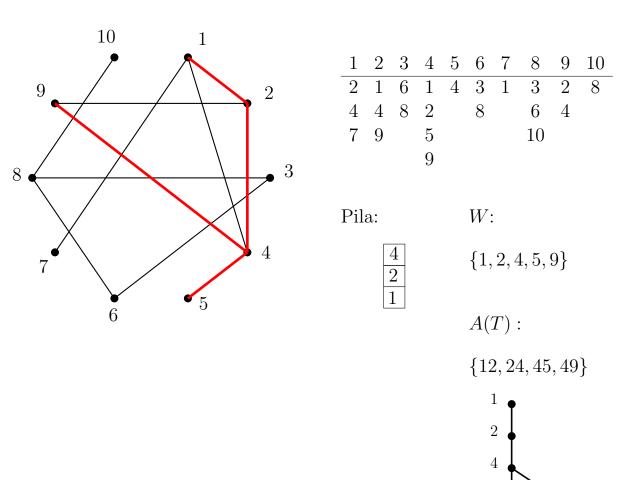




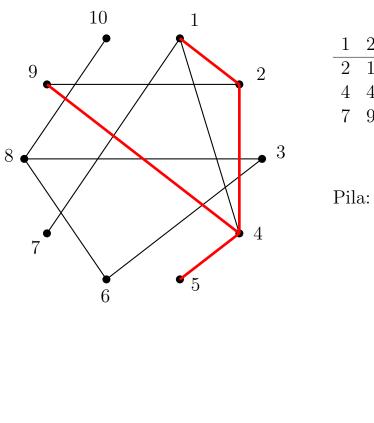


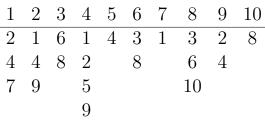


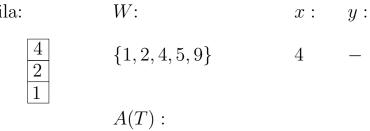


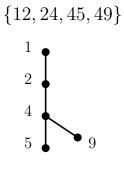


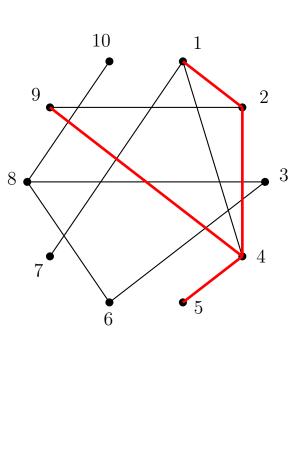
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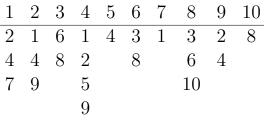


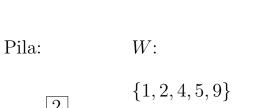


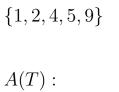


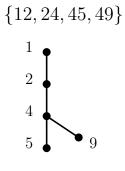


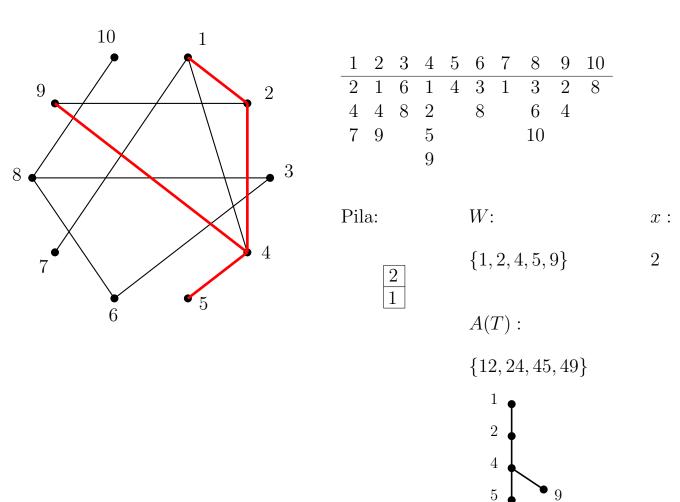


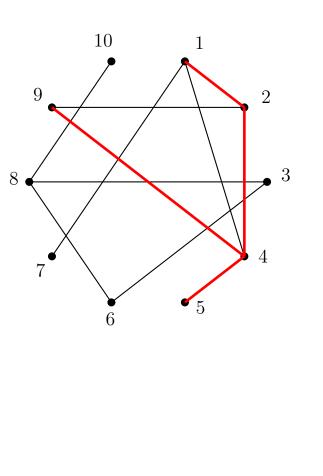


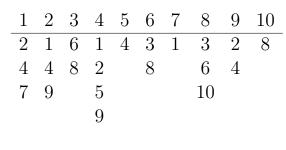


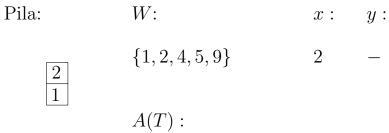


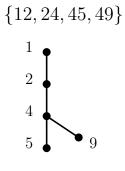


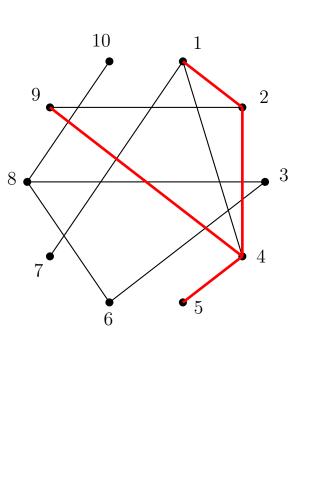


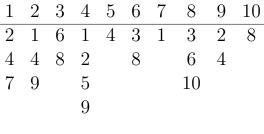


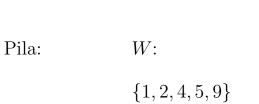


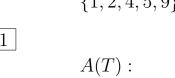


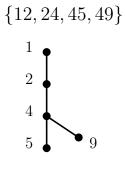


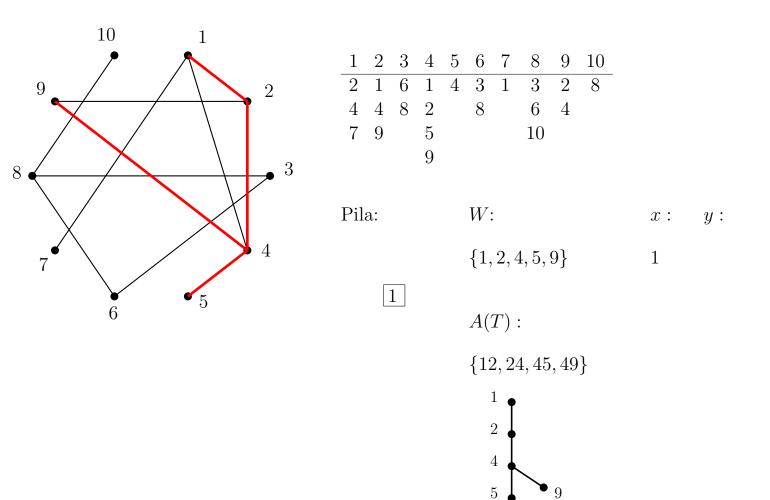


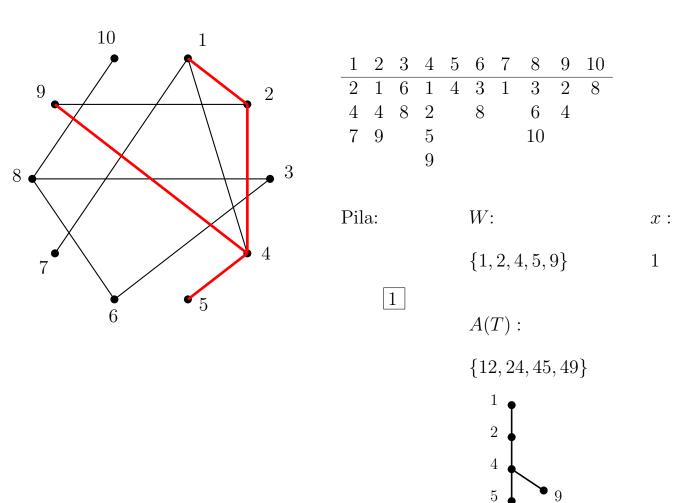


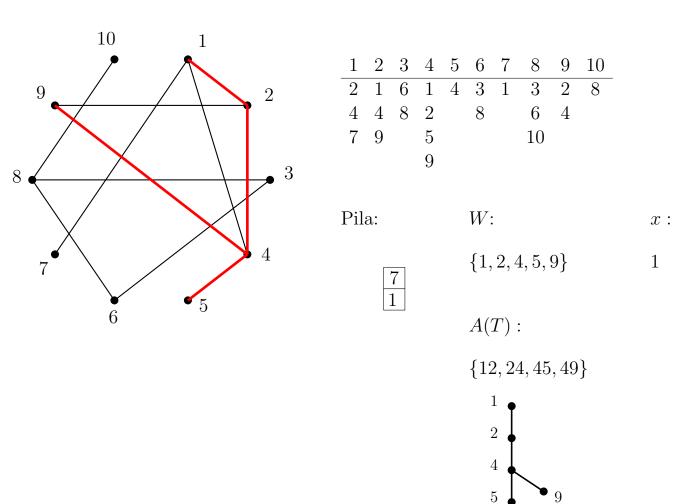


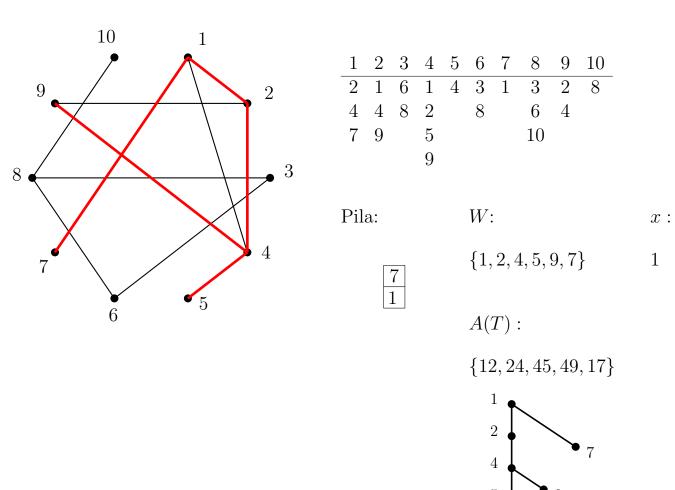


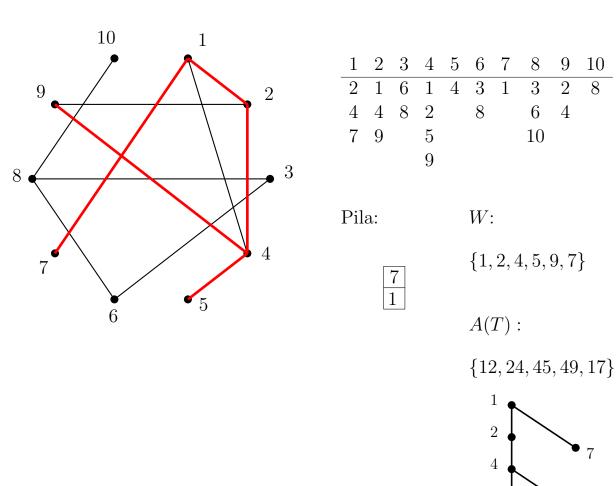


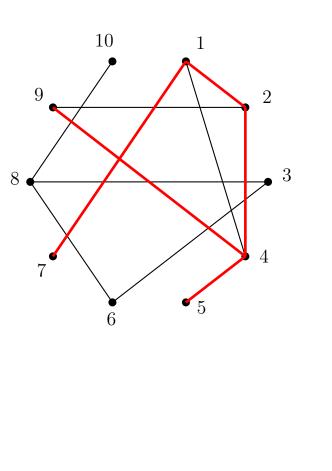


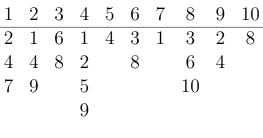


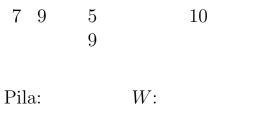




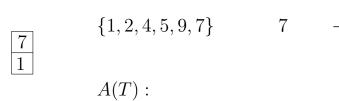




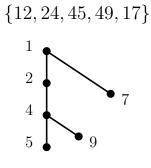


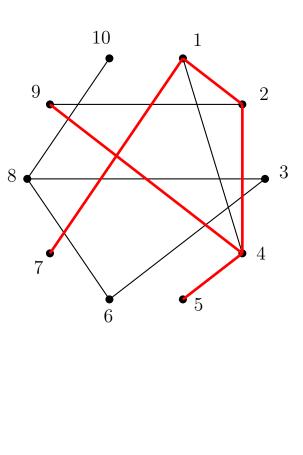


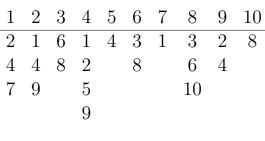
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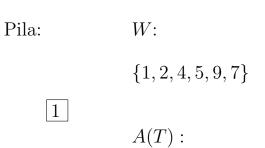


x:

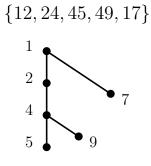




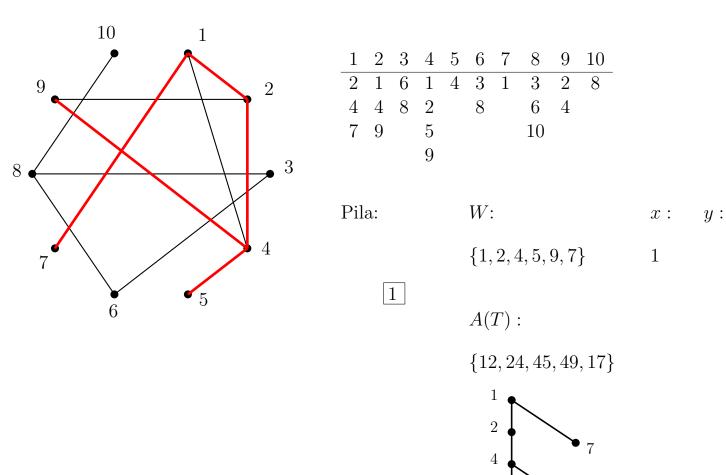


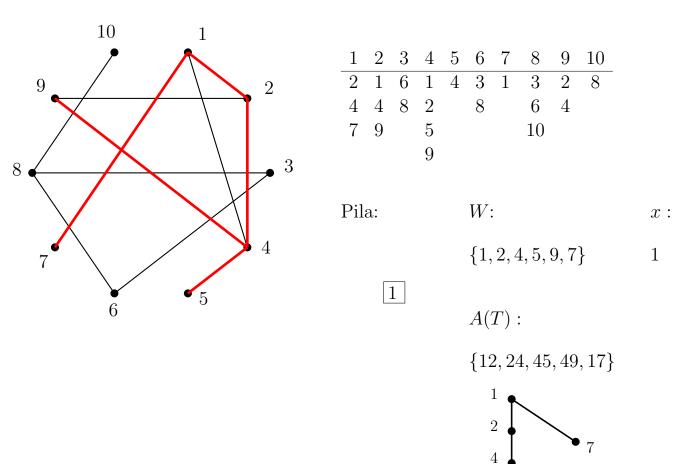


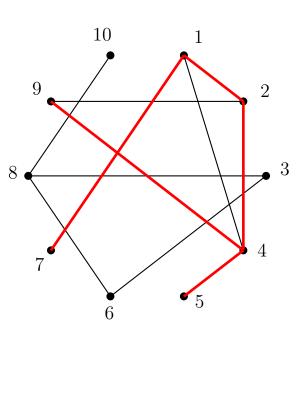
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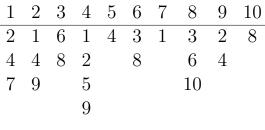


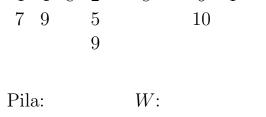
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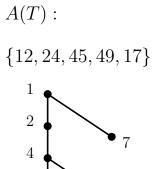








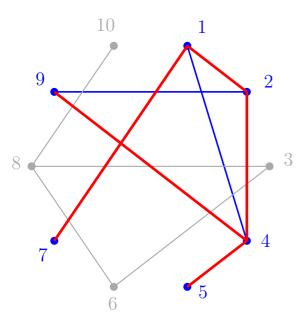




4

 $\{1, 2, 4, 5, 9, 7\}$

x:

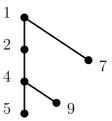


1	2	3	4	5	6	7	8	9	10
2	1	6	1	4	3	1	3	2	8
4	4	8	2		8		6	4	
7	9		5				10		
			9						

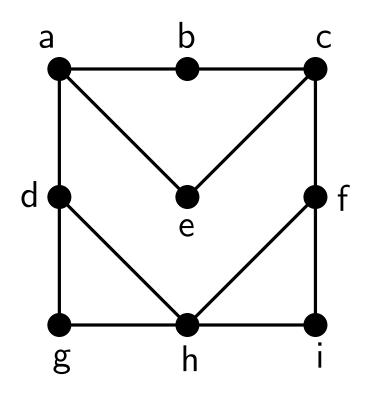
Vèrtexs del component connex d'1: $\{1,2,4,5,7,9\}$

Arestes d'un arbre generador del cc d'1:

$$\{12,24,45,49,17\}$$



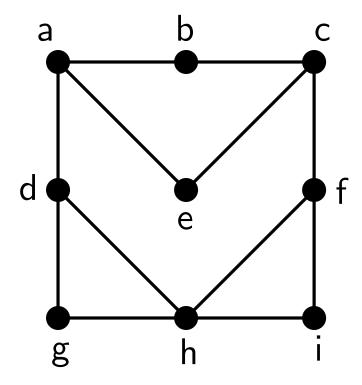
Arbres generadors: BFS/DFS

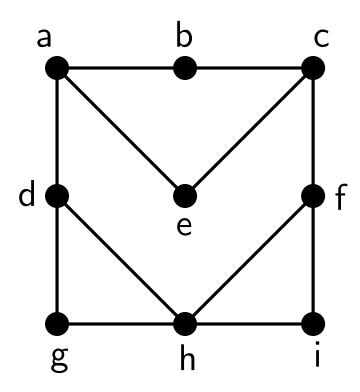


a	b	С	d	е	f	g	h	i
b	a	b	a	a	С	d	d	f
d	С	e	g	С	h	h	f	h
е		f	h		i		g i	

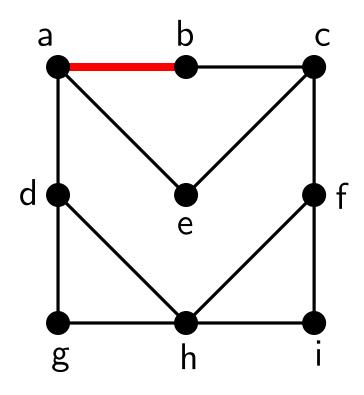
x	y	ℓ	W	A(T)
		(a)	$\{a\}$	{}
a	b	(a,b)	$\{a,b\}$	$\{ab\}$
a	d	(a, b, d)	$\{a,b,d\}$	$\{ab, ad\}$
a	e	(a, b, d, e)	$\{a,b,d,e\}$	$\{ab, ad, ae\}$
a	_	(b, d, e)	$\{a,b,d,e\}$	$\{ab, ad, ae\}$
b	c	(b,d,e,c)	$\{a,b,d,e,c\}$	$\{ab, ad, ae, bc\}$
b		(d, e, c)	$\{a,b,d,e,c\}$	$\{ab, ad, ae, bc\}$
d	g	(d, e, c, g)	$\{a,b,d,e,c,g\}$	$\{ab, ad, ae, bc, dg\}$
d	h	(d, e, c, g, h)	$\{a,b,d,e,c,g,h\}$	$\{ab, ad, ae, bc, dg, dh\}$
d		(e, c, g, h)	$\{a,b,d,e,c,g,h\}$	$\{ab, ad, ae, bc, dg, dh\}$
e		(c,g,h)	$\{a,b,d,e,c,g,h\}$	$\{ab, ad, ae, bc, dg, dh\}$
c	f	(c, g, h, f)	$\{a,b,d,e,c,g,h,f\}$	$\{ab, ad, ae, bc, dg, dh, cf\}$
c		(g,h,f)	$\{a,b,d,e,c,g,h,f\}$	$\{ab, ad, ae, bc, dg, dh, cf\}$
g	_	(h, f)	$\{a,b,d,e,c,g,h,f\}$	$\{ab, ad, ae, bc, dg, dh, cf\}$
h	i	(h, f, i)	$\{a,b,d,e,c,g,h,f,i\}$	$\{ab, ad, ae, bc, dg, dh, cf, hi\}$
h	_	(f,i)	$\{a,b,d,e,c,g,h,f,i\}$	$\{ab, ad, ae, bc, dg, dh, cf, hi\}$
f	_	(i)	$\{a,b,d,e,c,g,h,f,i\}$	$\{ab, ad, ae, bc, dg, dh, cf, hi\}$
$\lfloor i floor$			$\{a,b,d,e,c,g,h,f,i\}$	$ \{ab, ad, ae, bc, dg, dh, cf, hi\} $

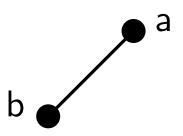
x	y	ℓ	W	A(T)
		(a)	$\{a\}$	{}
a	b	(b,a)	$\{a,b\}$	$\{ab\}$
b	c	(c, b, a)	$\{a,b,c\}$	$\{ab, bc\}$
c	e	(e, c, b, a)	$\{a,b,c,e\}$	$\{ab, bc, ce\}$
e	_	(c,b,a)	$\{a,b,c,e\}$	$\{ab, bc, ce\}$
c	f	(f, c, b, a)	$\{a,b,c,e,f\}$	$\{ab, bc, ce, cf\}$
f	h	(h, f, c, b, a)	$\{a,b,c,e,f,h\}$	$\{ab, bc, ce, cf, fh\}$
h	d	(d, h, f, c, b, a)	$\{a,b,c,e,f,h,d\}$	$\{ab, bc, ce, cf, fh, hd\}$
d	g	(g,d,h,f,c,b,a)	$\{a,b,c,e,f,h,d,g\}$	$\{ab, bc, ce, cf, fh, hd, dg\}$
g	_	(d, h, f, c, b, a)	$\{a,b,c,e,f,h,d,g\}$	$\{ab, bc, ce, cf, fh, hd, dg\}$
d		(h, f, c, b, a)	$\{a,b,c,e,f,h,d,g\}$	$\{ab, bc, ce, cf, fh, hd, dg\}$
h	i	(i, h, f, c, b, a)	$\{a,b,c,e,f,h,d,g,i\}$	$\boxed{\{ab, bc, ce, cf, fh, hd, dg, hi\}}$
i	_	(h, f, c, b, a)	$\{a,b,c,e,f,h,d,g,i\}$	$\boxed{\{ab, bc, ce, cf, fh, hd, dg, hi\}}$
h	_	(f, c, b, a)	$\{a,b,c,e,f,h,d,g,i\}$	$\boxed{\{ab, bc, ce, cf, fh, hd, dg, hi\}}$
f		(c, b, a)	$\{a,b,c,e,f,h,d,g,i\}$	$ \{ab, bc, ce, cf, fh, hd, dg, hi\} $
c	_	(b,a)	$\{a,b,c,e,f,h,d,g,i\}$	$\{ab, bc, ce, cf, fh, hd, dg, hi\}$
b	_	(a)	$\{a,b,c,e,f,h,d,g,i\}$	$\{ab, bc, ce, cf, fh, hd, dg, hi\}$
a			$\{a,b,c,e,f,h,d,g,i\}$	$ \{ab, bc, ce, cf, fh, hd, dg, hi\} $

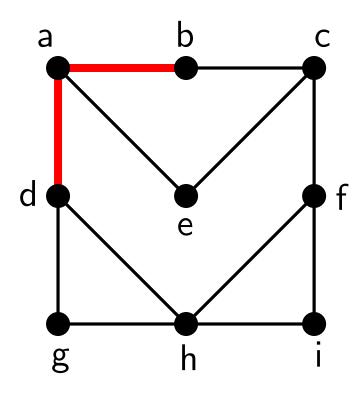


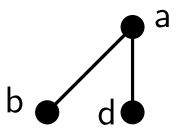


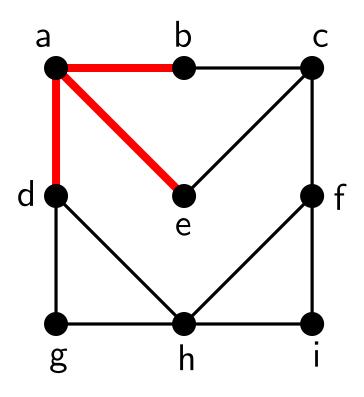


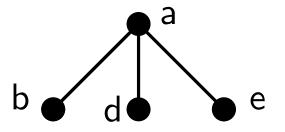


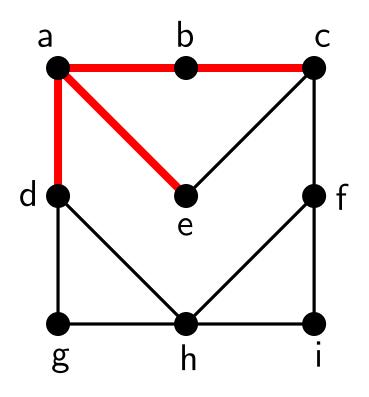


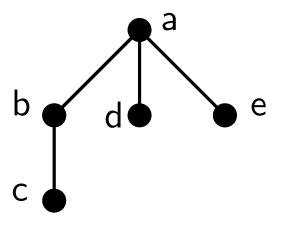


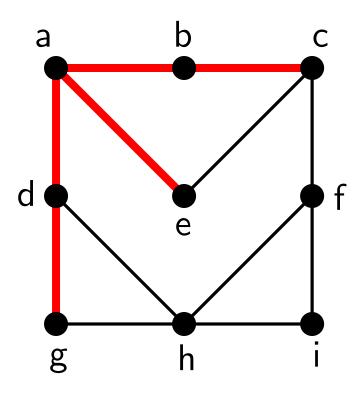


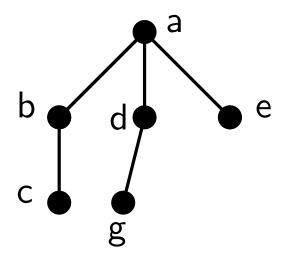




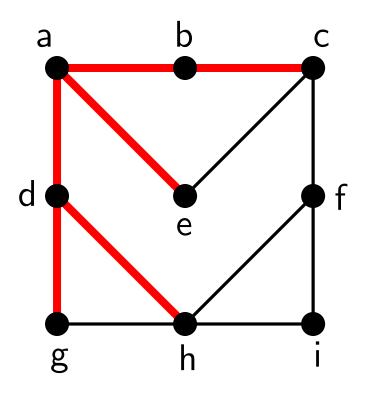


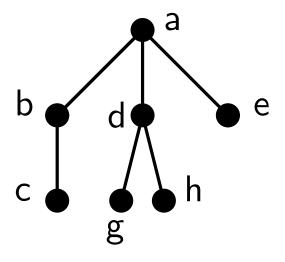




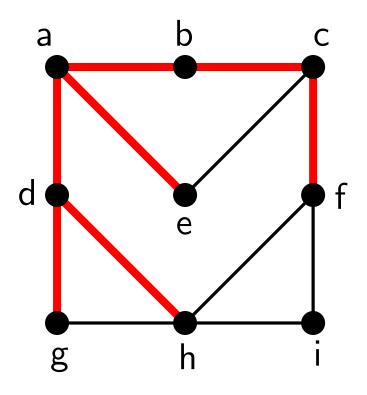


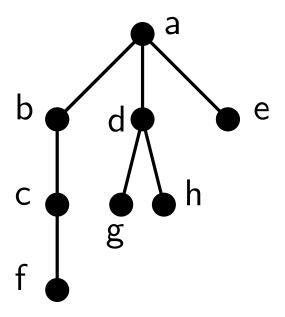
BFS



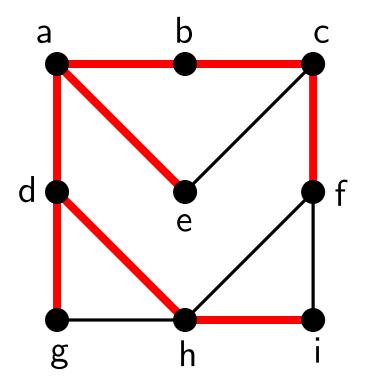


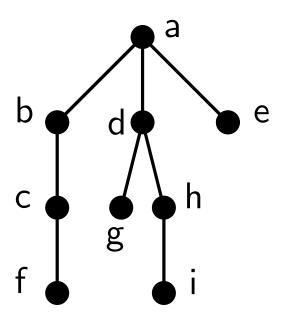
BFS

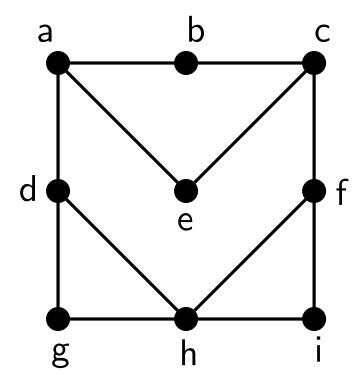


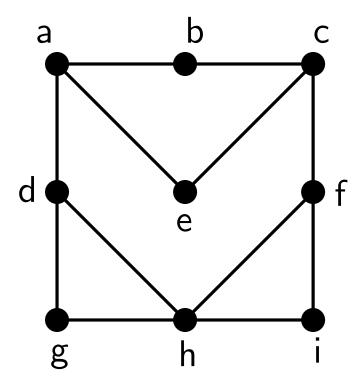


BFS

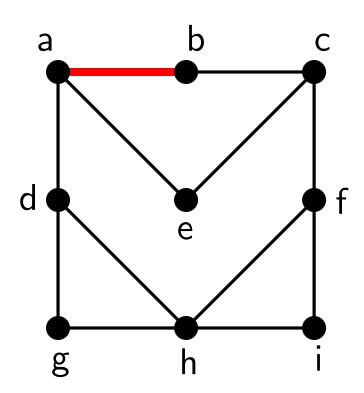


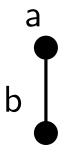


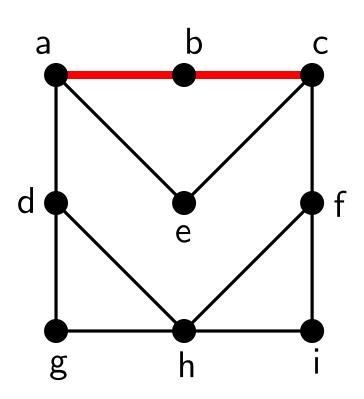


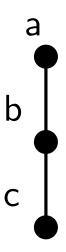


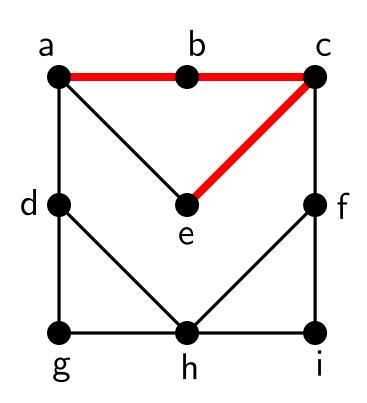


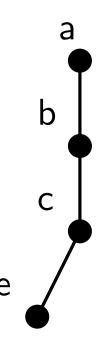


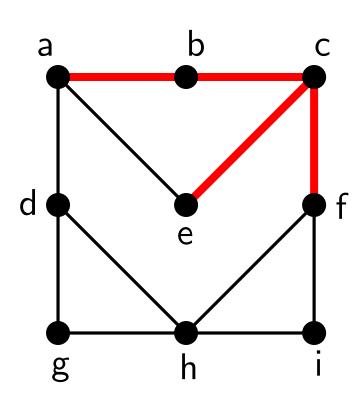


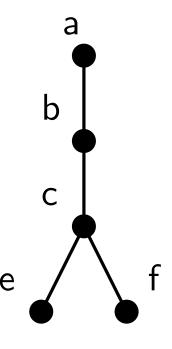


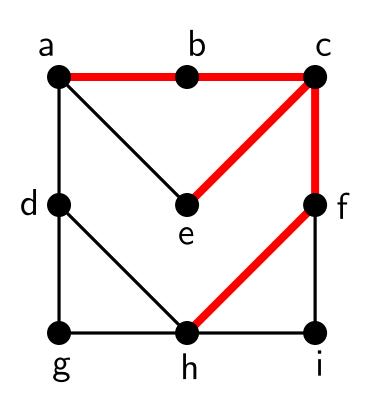


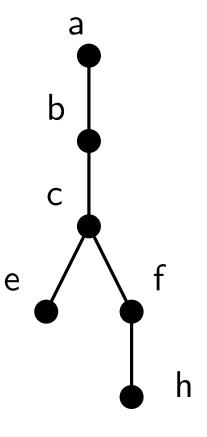


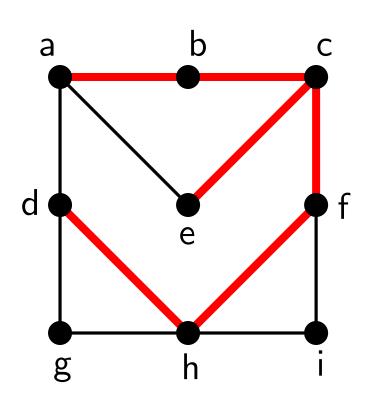


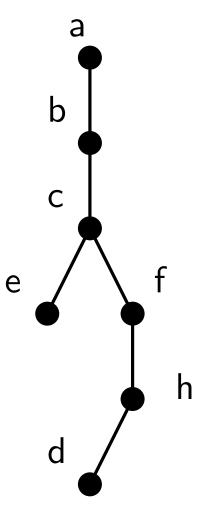


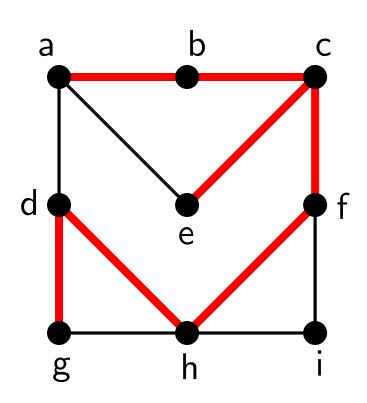


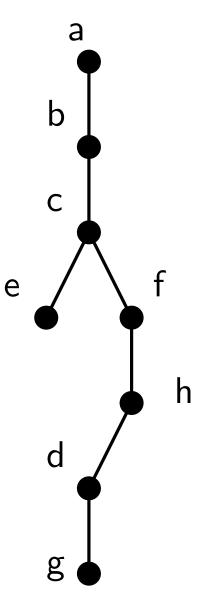


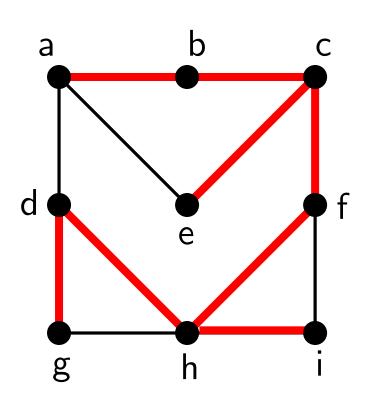


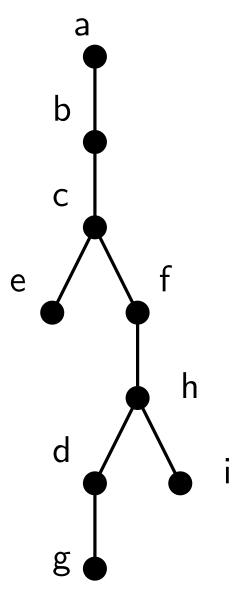




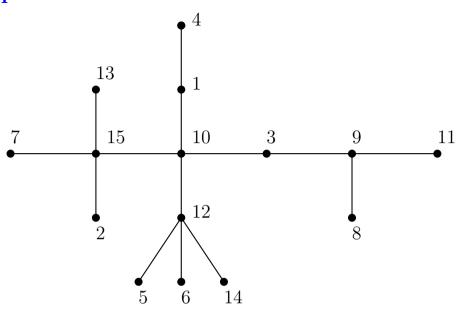


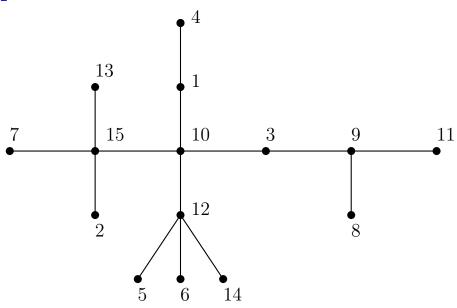




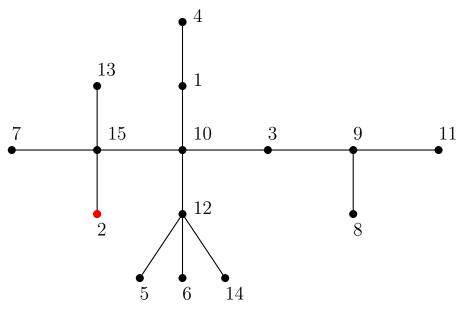


Seqüència de Prüfer d'un arbre d'un arbre d'ordre ≥ 3



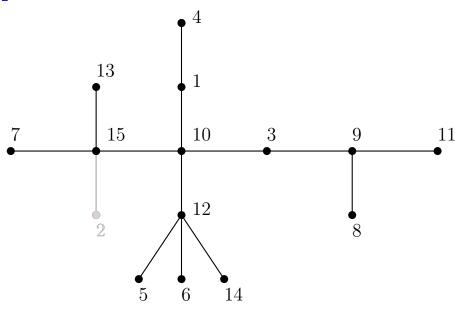


$$L = \min L =$$



$$L = \{2, 4, 5, 6, 7, 8, 11, 13, 14\}$$

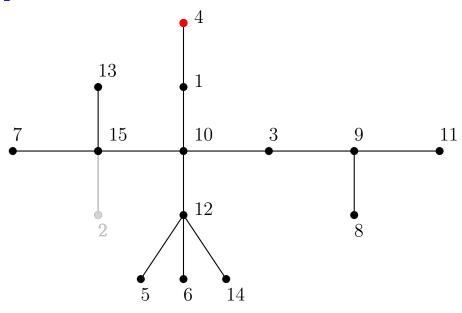
$$\min L = 2$$



$$L = \{2, 4, 5, 6, 7, 8, 11, 13, 14\}$$

$$\min L = 2$$

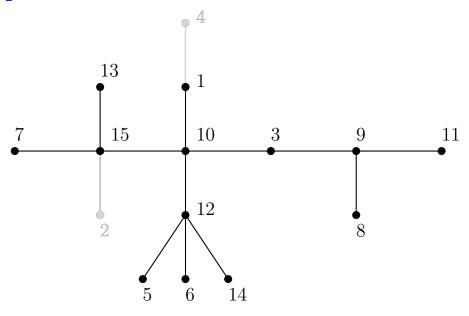




$$L = \{4, 5, 6, 7, 8, 11, 13, 14\}$$

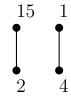
$$\min L = 4$$

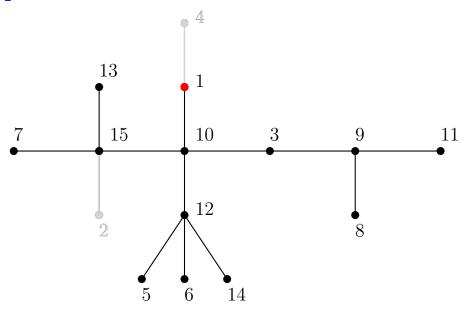




$$L = \{4, 5, 6, 7, 8, 11, 13, 14\}$$

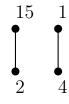
$$\min L = 4$$

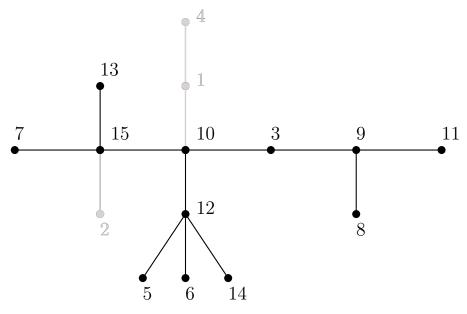




$$L = \{1, 5, 6, 7, 8, 11, 13, 14\}$$

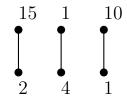
$$\min L = -1$$

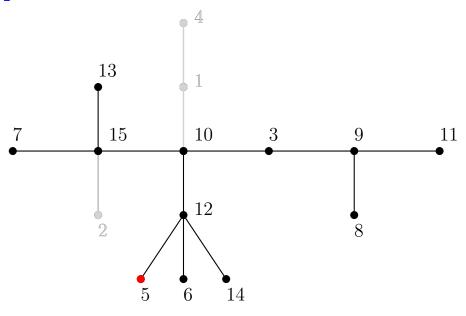




$$L = \{1, 5, 6, 7, 8, 11, 13, 14\}$$

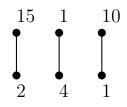
$$\min L = -1$$

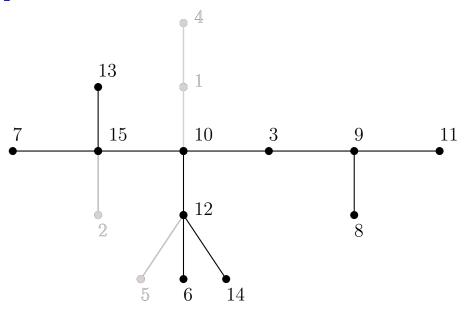




$$L = \{5, 6, 7, 8, 11, 13, 14\}$$

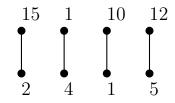
$$\min L = 5$$

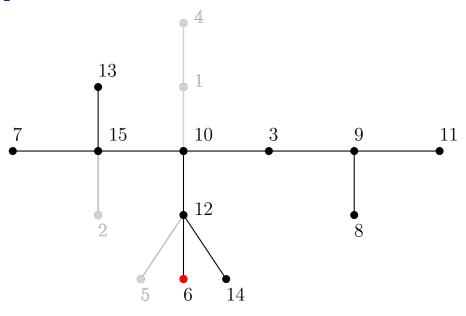




$$L = \{5, 6, 7, 8, 11, 13, 14\}$$

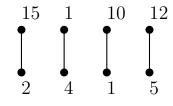
$$\min L = 5$$

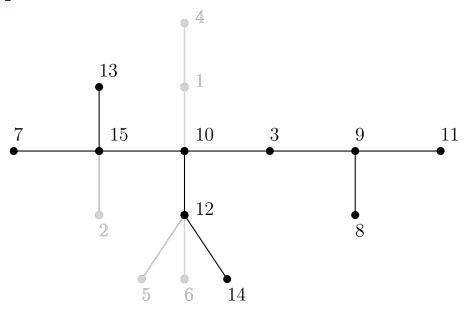




$$L = \{6, 7, 8, 11, 13, 14\}$$

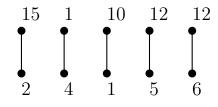
$$\min L = -6$$

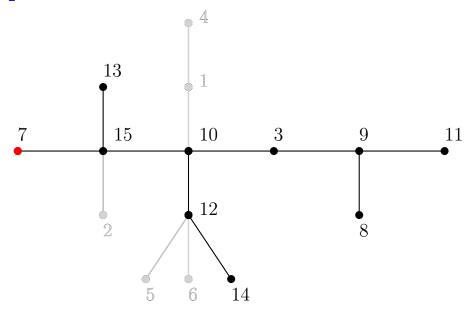




$$L = \{6, 7, 8, 11, 13, 14\}$$

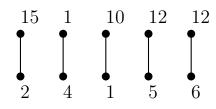
$$\min L = 6$$

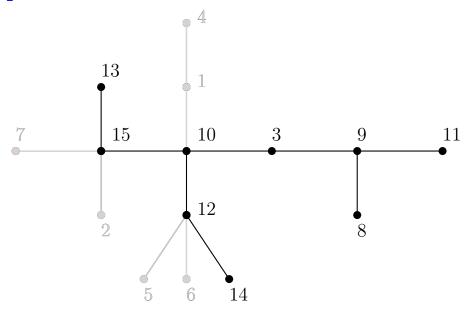




$$L = \{7, 8, 11, 13, 14\}$$

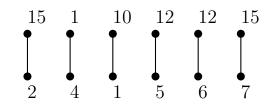
$$\min L = 7$$

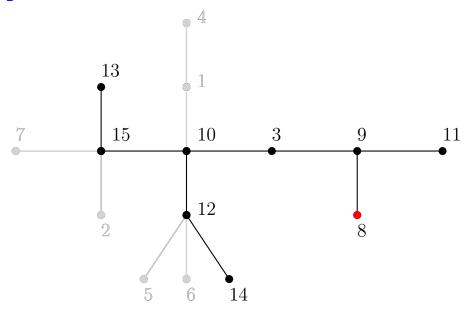




$$L = \{7, 8, 11, 13, 14\}$$

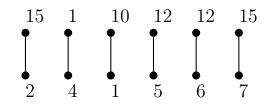
$$\min L = 7$$

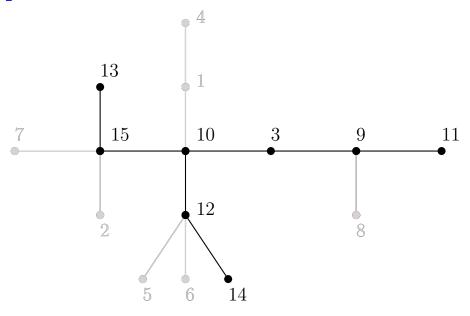




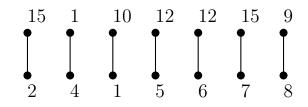
$$L = \{8, 11, 13, 14\}$$

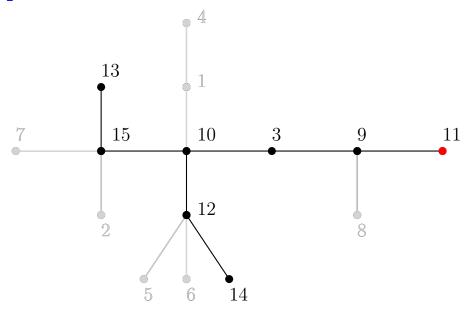
$$\min L = 8$$





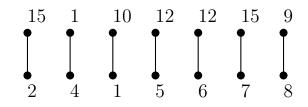
$$L = \{8, 11, 13, 14\}$$
$$\min L = 8$$

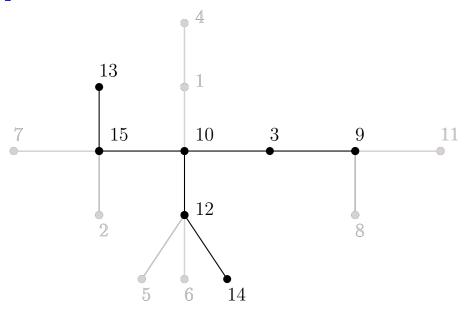




$$L = \{11, 13, 14\}$$

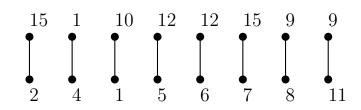
$$\min L = 11$$

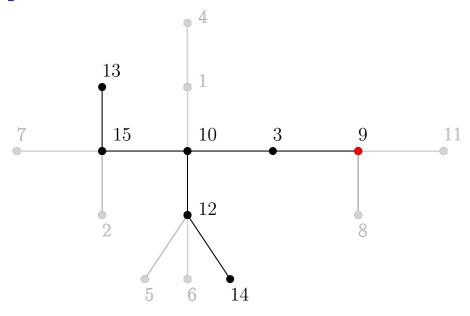




$$L = \{11, 13, 14\}$$

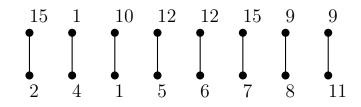
 $\min L = 11$

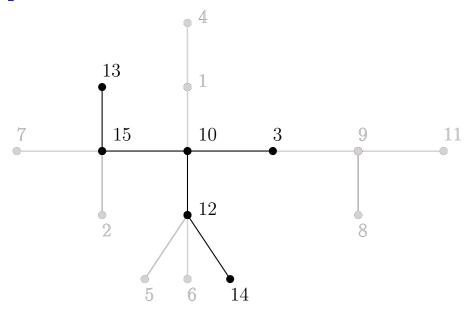




$$L = \{9, 13, 14\}$$

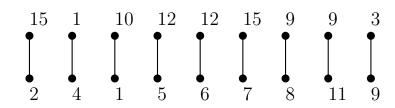
 $\min L = 9$

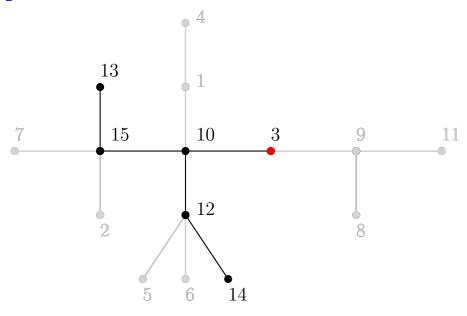




$$L = \{9, 13, 14\}$$

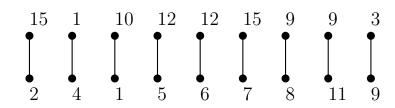
 $\min L = 9$

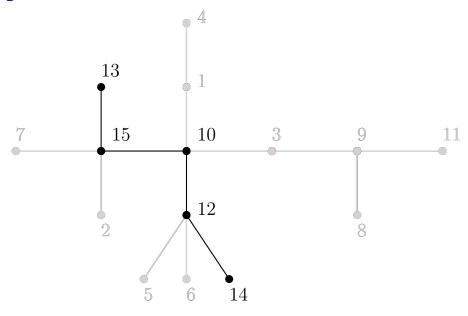




$$L = \{3, 13, 14\}$$

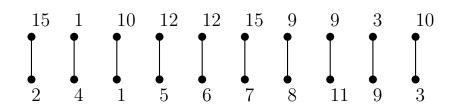
 $\min L = 3$

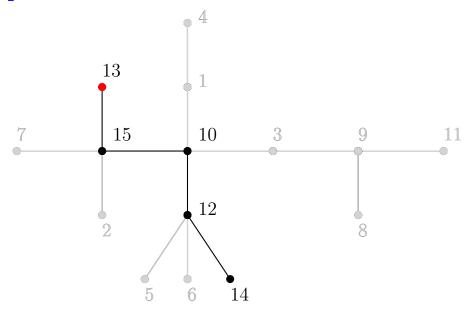




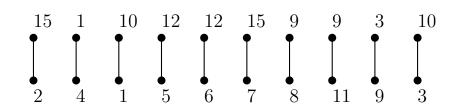
$$L = \{3, 13, 14\}$$

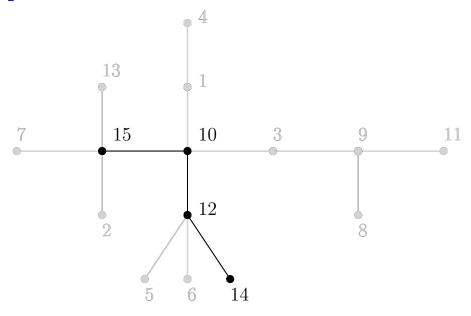
 $\min L = 3$



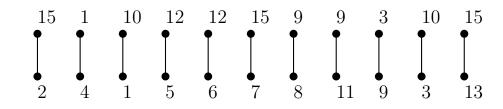


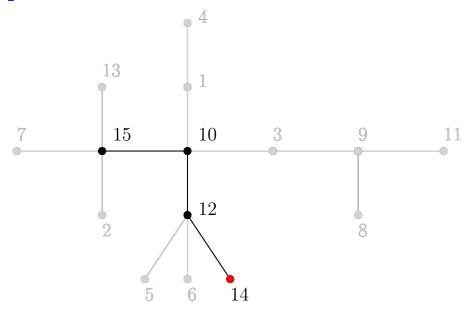
$$L = \{13, 14\}$$
$$\min L = 13$$



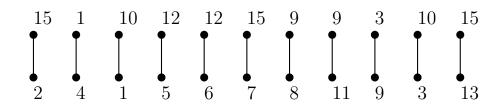


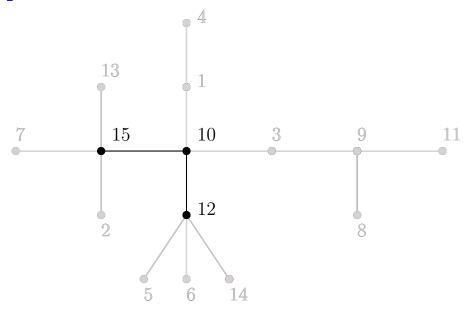
$$L = \{13, 14\}$$
$$\min L = 13$$



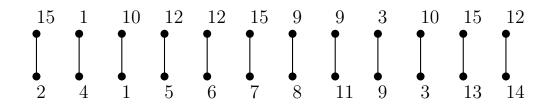


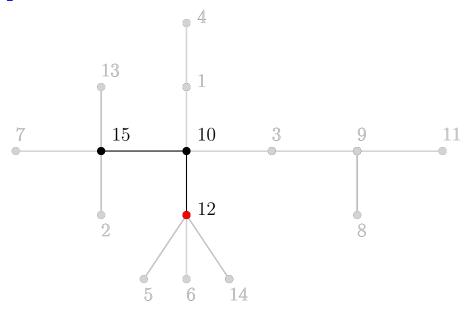
$$L = \{14, 15\}$$
$$\min L = 14$$



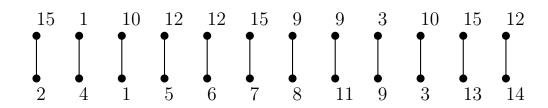


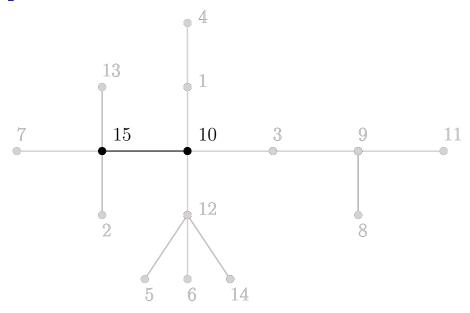
$$L = \{14, 15\}$$
$$\min L = 14$$



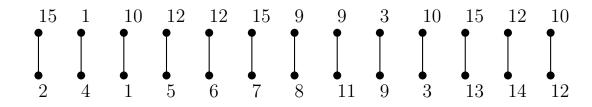


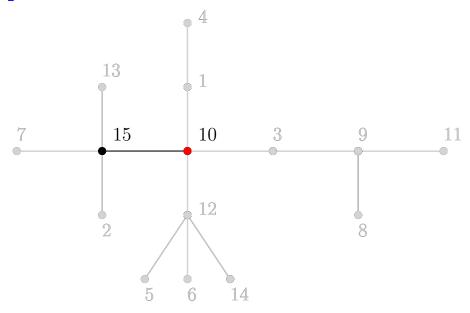
$$L = \{12, 15\}$$
$$\min L = 12$$



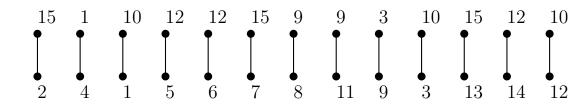


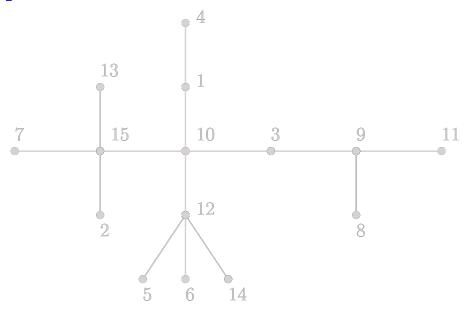
$$L = \{12, 15\}$$
$$\min L = 12$$



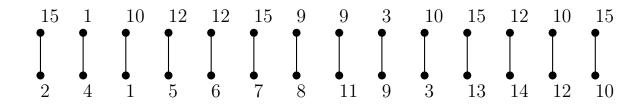


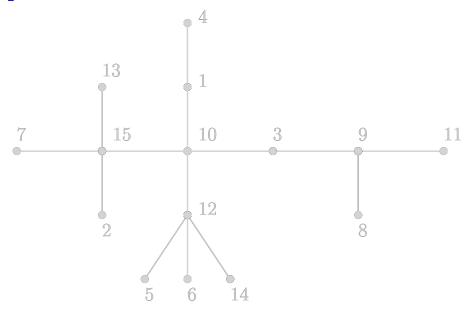
$$L = \{10, 15\}$$
$$\min L = 10$$





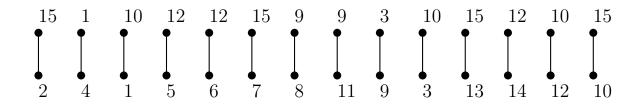
$$L = \{10, 15\}$$
$$\min L = 10$$

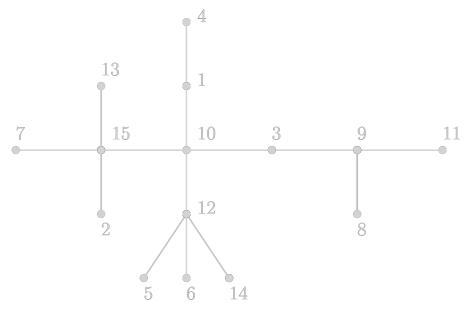




$$L = \{\}$$

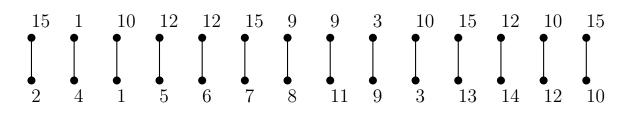
$$\min L = -$$



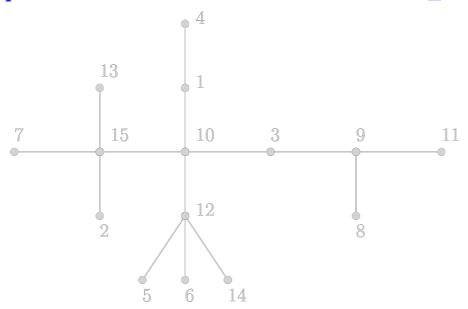


$$L = \{\}$$

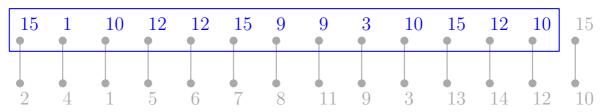
$$\min L = -$$

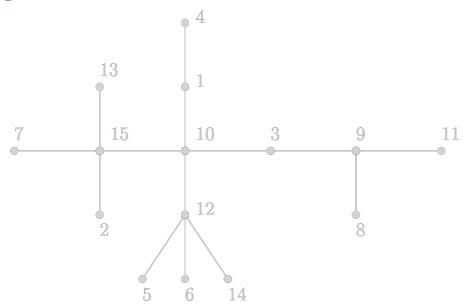


Arestes de T

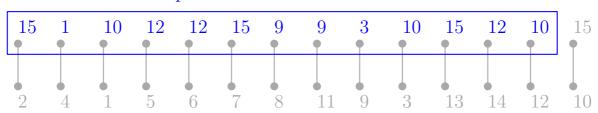


Seqüència de Prüfer

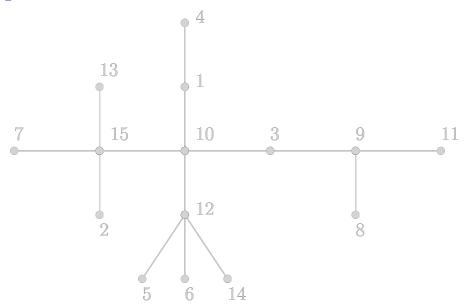




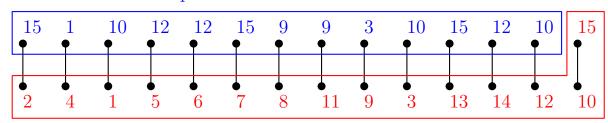
Seqüència de Prüfer



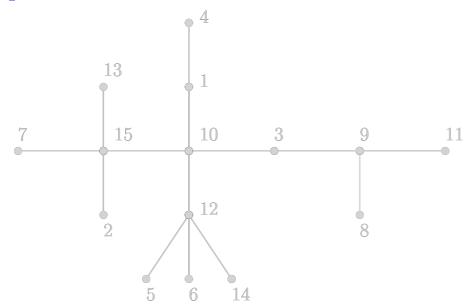
té longitud 13 (=
$$mida(T) - 1 = ord(T) - 2$$
)

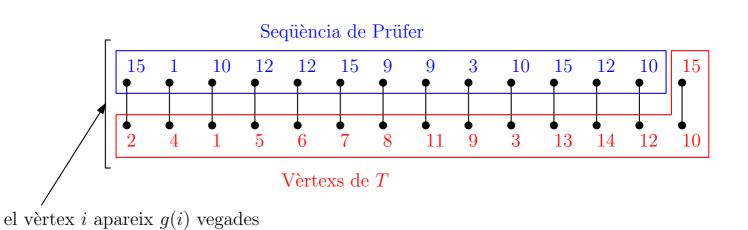


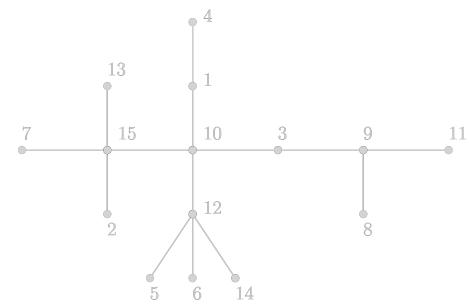
Seqüència de Prüfer



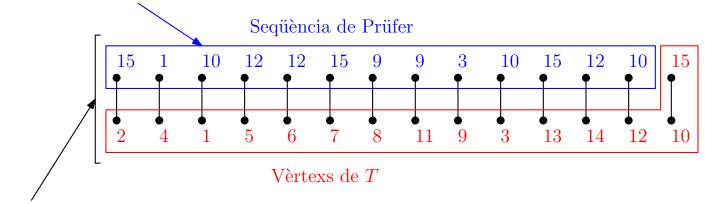
Vèrtexs de T



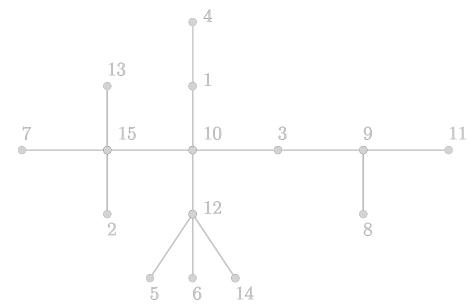




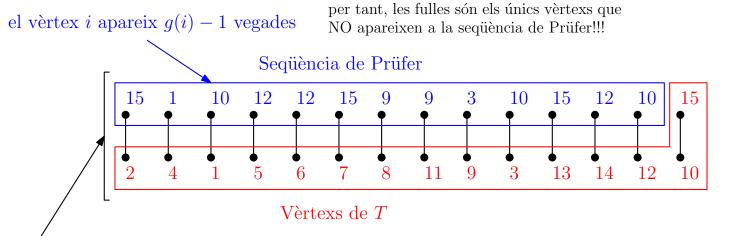




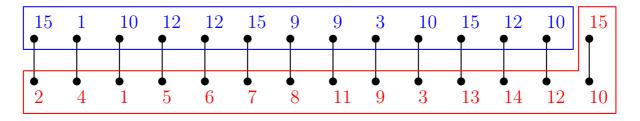
el vèrtex i apareix g(i) vegades



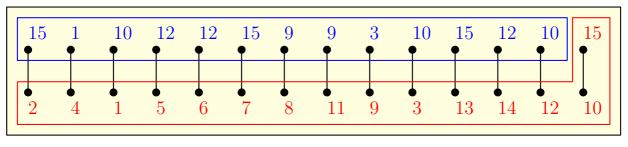
el vèrtex i apareix g(i) vegades

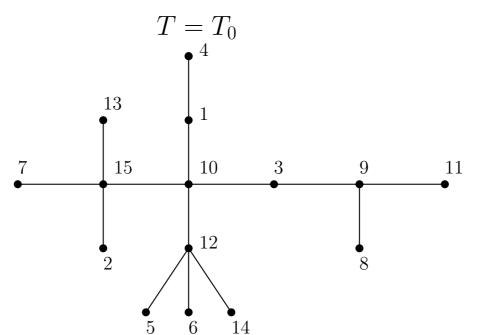


Seqüència de Prüfer

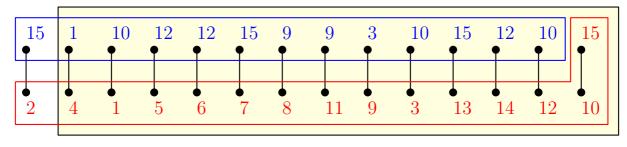


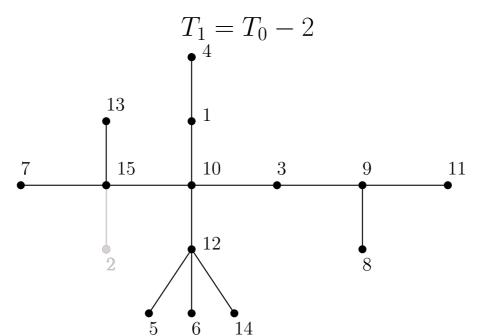
Seqüència de Prüfer



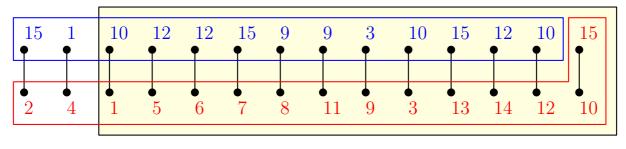


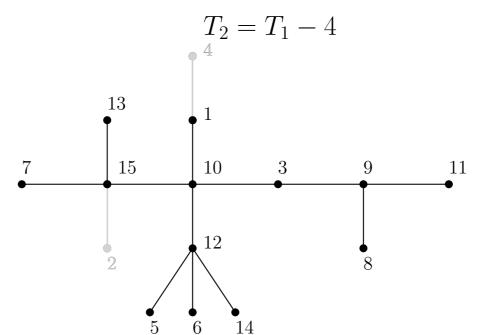
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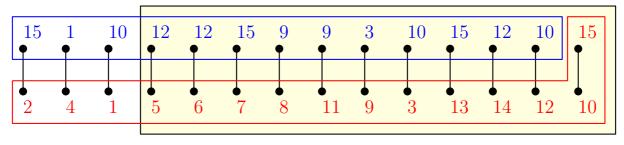


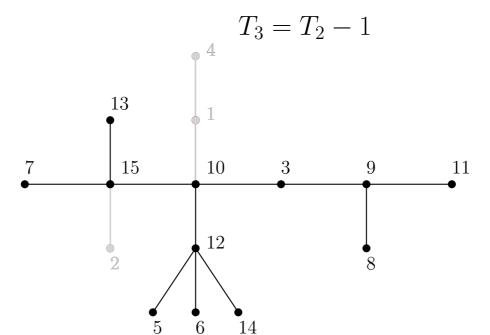
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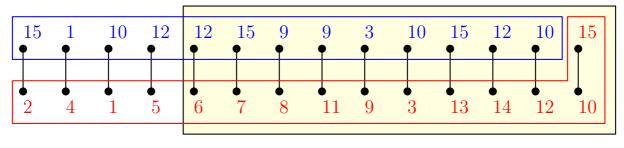


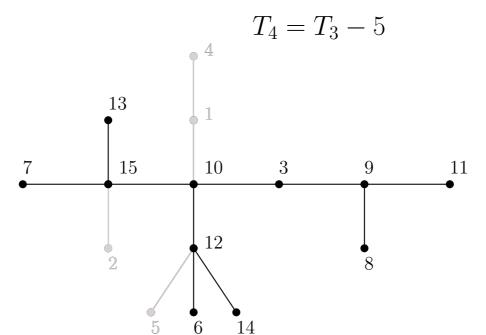
Seqüència de Prüfer



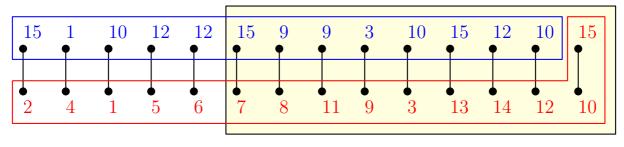


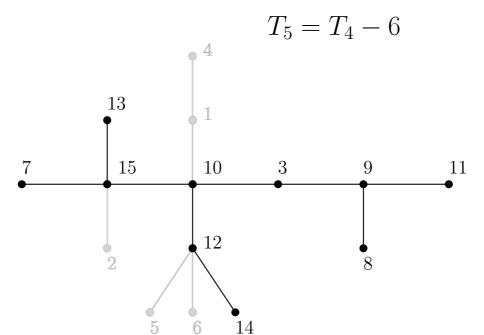
Seqüència de Prüfer



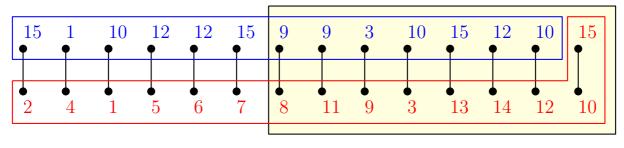


Seqüència de Prüfer

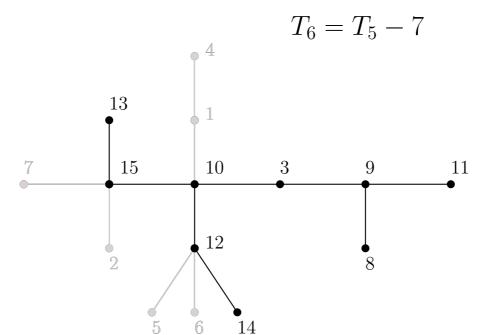




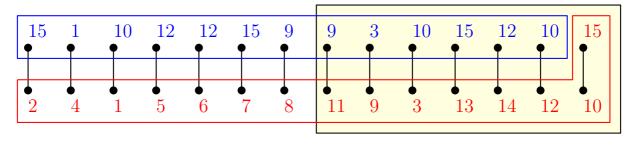
Seqüència de Prüfer

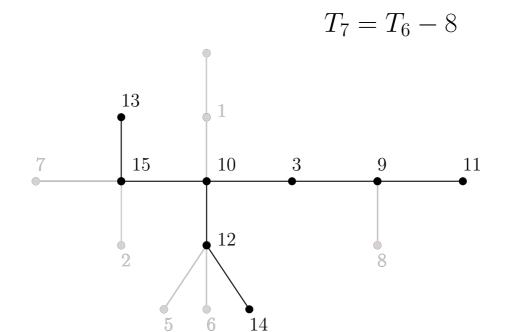


Vèrtexs de l'arbre

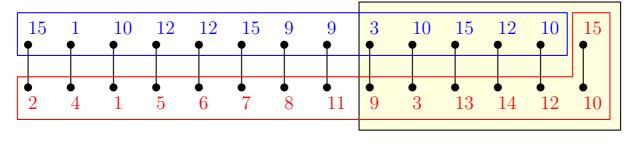


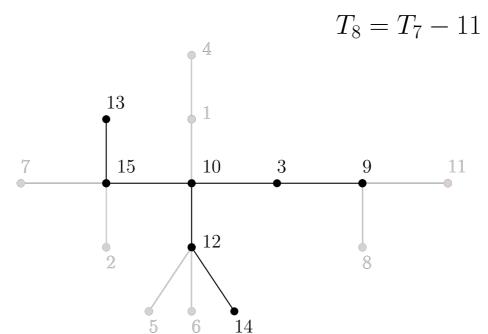
Seqüència de Prüfer



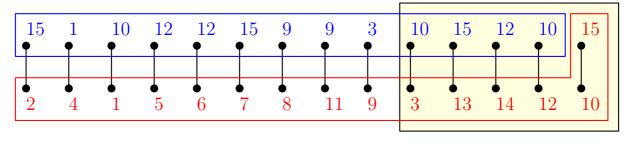


Seqüència de Prüfer

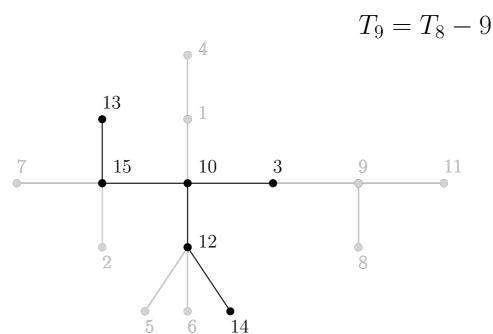




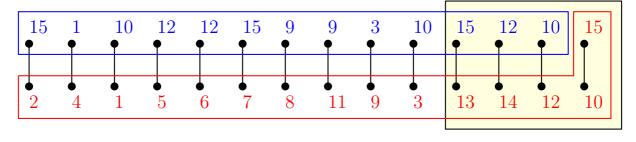
Seqüència de Prüfer



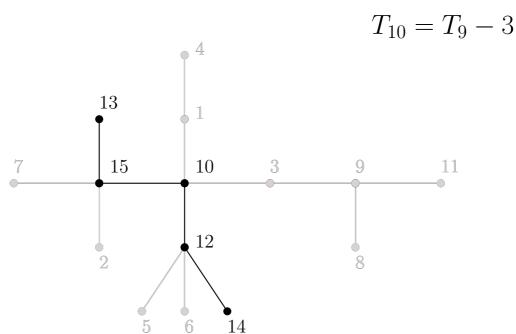
Vèrtexs de l'arbre



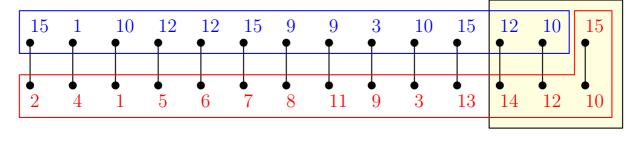
Seqüència de Prüfer

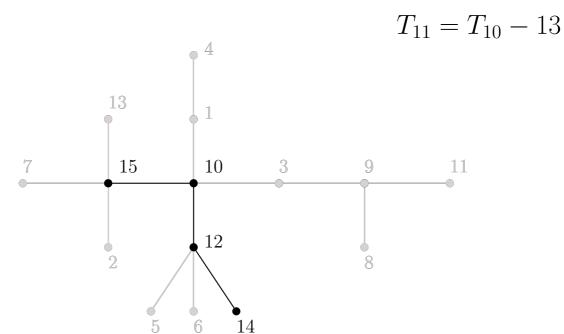


Vèrtexs de l'arbre

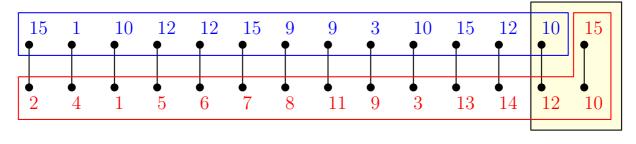


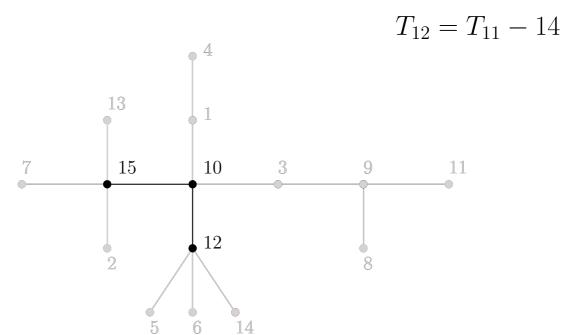
Seqüència de Prüfer



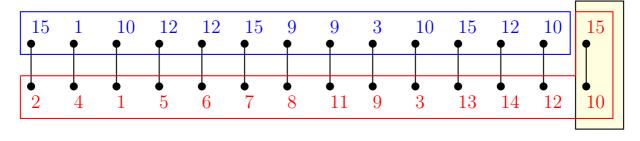


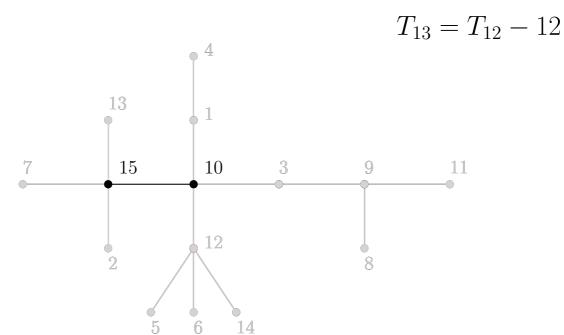
Seqüència de Prüfer





Seqüència de Prüfer





Sequència de Prüfer: (15, 1, 10, 12, 12, 15, 9, 9, 3, 10, 15, 12, 10)

Seqüència de Prüfer: (15, 1, 10, 12, 12, 15, 9, 9, 3, 10, 15, 12, 10)

té longitud 13, per tant és la seqüència de Prüfer d'un arbre d'ordre 15

Seqüència de Prüfer: (15, 1, 10, 12, 12, 15, 9, 9, 3, 10, 15, 12, 10)

té longitud 13, per tant és la seqüència de Prüfer d'un arbre d'ordre 15

 $S := \text{següència de Prüfer de l'arbre } T_i, i = 0, 1, 2, 3, \dots, 13$

 $V := \text{ vèrtexs de l'arbre } T_i$

 $P := \text{vèrtexs de l'abre } T_i \text{ que apareixen a la seqüència de Prüfer}$

 $W = V \setminus P :=$ vèrtexs de l'abre T_i que NO apareixen a la seqüència de Prüfer

 $\min W$ és adjacent al primer valor de la sequència de Prüfer

$$S := (15, 1, 10, 12, 12, 15, 9, 9, 3, 10, 15, 12, 10)$$

$$V := \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 \}$$

$$P := \{\}$$

$$W = V \setminus P := \{\}$$

$$\min W := \{\}$$

$$T_0 \begin{tabular}{ll} $S := (15,1,10,12,12,15,9,9,3,10,15,12,10)$ \\ $V := \{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15 \,\}$ \\ $P := \{ \end{tabular} \begin{tabular}{ll} $A(T) := \{ \end{tabular} \end{tabular}$$

$$T_0 \begin{tabular}{lll} $S := (15,1,10,12,12,15,9,9,3,10,15,12,10)$ \\ $V := \{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15 \,\}$ \\ $P := \{1,3,9,10,12,13,14,15 \,\}$ \\ $W = V \setminus P := \{2,4,5,6,7,8,11,13,14,3\}$ \\ $\min W := 2$ \\ $A(T) := \{ \begin{tabular}{lll} $15 \\ 2 \\ \end{tabular}$$

$$T_1 \qquad S := (\quad 1, 10, 12, 12, 15, 9, 9, 3, 10, 15, 12, 10)$$

$$V := \{1, \quad 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 \}$$

$$P := \{ 1, \quad 3, \qquad 9, 10, \qquad 12, \qquad 15 \}$$

$$W = V \setminus P := \{ \qquad 4, 5, 6, 7, 8, \qquad 11, \qquad 13, 14, \qquad \}$$

$$\min W := \quad 4$$

$$A(T) := \{ \begin{array}{c} 15 \\ 2 \end{array} \right.$$

$$T_1 \begin{cases} S := (& 1,10,12,12,15,9,9,3,10,15,12,10) \\ V := \{1, & 3,4,5,6,7,8,9,10,11,12,13,14,15 \} \end{cases}$$

$$P := \{ 1, & 3, & 9,10, & 12, & 15 \}$$

$$W = V \setminus P := \{ & 4,5,6,7,8, & 11, & 13,14, & \}$$

$$\min W := 4$$

$$A(T) := \{ \begin{cases} 15 & 1 \\ 2 & 4 \end{cases} \}$$

$$T_{2} \qquad S := (10, 12, 12, 15, 9, 9, 3, 10, 15, 12, 10)$$

$$V := \{1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 \}$$

$$P := \{ 3, 9, 10, 12, 15 \}$$

$$W = V \setminus P := \{ 1, 5, 6, 7, 8, 11, 13, 14, \}$$

$$\min W := 1$$

$$A(T) := \{ 15, 1 \\ 2, 4 \}$$

$$T_{2} \begin{bmatrix} S := (& 10, 12, 12, 15, 9, 9, 3, 10, 15, 12, 10) \\ V := \{1, & 3, & 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 \} \end{bmatrix}$$

$$P := \{ & 3, & 9, 10, & 12, & 15 \}$$

$$W = V \setminus P := \{ & 1, & 5, 6, 7, 8, & 11, & 13, 14, & \}$$

$$\min W := & 1$$

$$A(T) := \{ \begin{pmatrix} 15 & 1 & 10 \\ 1 & 1 & 10 \\ 2 & 4 & 1 \end{pmatrix}$$

$$T_{3} \begin{bmatrix} S := (& 12,12,15,9,9,3,10,15,12,10) \\ V := \{ & 3, & 5,6,7,8,9,10,11,12,13,14,15 \} \end{bmatrix}$$

$$P := \{ & 3, & 9,10, & 12, & 15 \}$$

$$W = V \setminus P := \{ & 5,6,7,8, & 11, & 13,14, & \}$$

$$\min W := \begin{bmatrix} 15 & 1 & 10 \\ 2 & 4 & 1 \end{bmatrix}$$

$$T_{3} \begin{bmatrix} S := (& 12, 12, 15, 9, 9, 3, 10, 15, 12, 10) \\ V := \{ & 3, & 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 \} \end{bmatrix}$$

$$P := \{ & 3, & 9, 10, & 12, & 15 \}$$

$$W = V \setminus P := \{ & 5, 6, 7, 8, & 11, & 13, 14, & \}$$

$$\min W := 5$$

$$A(T) := \{ \int_{2}^{15} \int_{4}^{1} \int_{1}^{10} \int_{2}^{10} \int_{4}^{10} \int_{1}^{10} \int_{1}^{1$$

$$T_{3} \qquad S := (12, 12, 15, 9, 9, 3, 10, 15, 12, 10)$$

$$V := \{ 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 \}$$

$$P := \{ 3, 9, 10, 12, 15 \}$$

$$W = V \setminus P := \{ 5, 6, 7, 8, 11, 13, 14, \}$$

$$\min W := 5$$

$$A(T) := \{ 15, 1, 10, 12, 12, 13, 14, 15 \}$$

$$T_4 \qquad S := (\qquad 12,15,9,9,3,10,15,12,10)$$

$$V := \{ \qquad 3, \qquad 6,7,8,9,10,11,12,13,14,15 \}$$

$$P := \{ \qquad 3, \qquad 9,10, \qquad 12, \qquad 15 \}$$

$$W = V \setminus P := \{ \qquad 6,7,8, \qquad 11, \qquad 13,14, \qquad \}$$

$$\min W := \qquad 6$$

$$A(T) := \{ \begin{array}{c} 15 & 1 & 10 & 12 & 12 \\ 2 & 4 & 1 & 5 & 6 \end{array}$$

$$T_{5} \begin{bmatrix} S := (& 15, 9, 9, 3, 10, 15, 12, 10) \\ V := \{ & 3, & 7, 8, 9, 10, 11, 12, 13, 14, 15 \} \end{bmatrix}$$

$$P := \{ & 3, & 9, 10, & 12, & 15 \}$$

$$W = V \setminus P := \{ & 7, 8, & 11, & 13, 14, & \}$$

$$\min W :=$$

$$A(T) := \{ \int_{2}^{15} \int_{4}^{1} \int_{1}^{10} \int_{5}^{12} \int_{6}^{12} \int_{6}^{1$$

$$T_{5} \begin{bmatrix} S := (& 15, 9, 9, 3, 10, 15, 12, 10) \\ V := \{ & 3, & 7, 8, 9, 10, 11, 12, 13, 14, 15 \} \end{bmatrix}$$

$$P := \{ & 3, & 9, 10, & 12, & 15 \}$$

$$W = V \setminus P := \{ & 7, 8, & 11, & 13, 14, & \}$$

$$\min W := 7$$

$$A(T) := \{ \int_{2}^{15} \int_{4}^{1} \int_{1}^{10} \int_{5}^{12} \int_{6}^{12} \int_{6}^$$

$$T_{5} \begin{bmatrix} S := (& 15, 9, 9, 3, 10, 15, 12, 10) \\ V := \{ & 3, & 7, 8, 9, 10, 11, 12, 13, 14, 15 \} \end{bmatrix}$$

$$P := \{ & 3, & 9, 10, & 12, & 15 \}$$

$$W = V \setminus P := \{ & 7, 8, & 11, & 13, 14, & \}$$

$$\min W := 7$$

$$A(T) := \{ \int_{2}^{15} \int_{4}^{1} \int_{1}^{10} \int_{5}^{12} \int_{6}^{12} \int_{7}^{15} \int_{7}^$$

$$T_{6} \begin{tabular}{lll} $S:=(&&9,9,3,10,15,12,10)$ \\ $V:=\{&&3,&&8,9,10,11,12,13,14,15\}$ \\ $P:=\{&&3,&&9,10,&12,&15\}$ \\ $W=V\setminus P:=\{&&8,&&11,&&13,14,&\}$ \\ $\min W:=$ \\ $A(T):=\{&\begin{tabular}{lll} $15,$ &1,&$10,$ &12,&12,&15,\\ 2 &4,&1,&5,&6,&7,&\\ \end{tabular}$$

$$T_{6} \begin{tabular}{c} S := (& 9,9,3,10,15,12,10) \\ V := \{ & 3, & 8,9,10,11,12,13,14,15 \, \} \\ P := \{ & 3, & 9,10,&12,&15 \, \} \\ W = V \setminus P := \{ & 8, & 11,&13,14,& \} \\ \min W := & 8 \\ A(T) := \left\{ \begin{array}{c} 15 & 1 & 10 & 12 & 12 & 15 \\ 2 & 4 & 1 & 5 & 6 & 7 \end{array} \right.$$

$$T_{6} \begin{tabular}{c} S := (& 9,9,3,10,15,12,10) \\ V := \{ & 3, & 8,9,10,11,12,13,14,15 \, \} \\ P := \{ & 3, & 9,10,&12,&15 \, \} \\ W = V \setminus P := \{ & 8, & 11,&13,14,& \} \\ \min W := & 8 \\ A(T) := \left\{ \begin{array}{c} 15 & 1 & 10 & 12 & 12 & 15 & 9 \\ 2 & 4 & 1 & 5 & 6 & 7 & 8 \\ \end{array} \right.$$

$$T_{7} \begin{bmatrix} S := (& 9, 3, 10, 15, 12, 10) \\ V := \{ & 3, & 9, 10, 11, 12, 13, 14, 15 \} \end{bmatrix}$$

$$P := \{ & 3, & 9, 10, & 12, & 15 \}$$

$$W = V \setminus P := \{ & 11, & 13, 14, & \}$$

$$\min W := \begin{bmatrix} 15 & 1 & 10 & 12 & 12 & 15 & 9 \\ 2 & 4 & 1 & 5 & 6 & 7 & 8 \end{bmatrix}$$

$$T_{7} \begin{bmatrix} S := (& 9,3,10,15,12,10) \\ V := \{ & 3, & 9,10,11,12,13,14,15 \} \end{bmatrix}$$

$$P := \{ & 3, & 9,10, & 12, & 15 \}$$

$$W = V \setminus P := \{ & 11, & 13,14, & \}$$

$$\min W := & 11$$

$$A(T) := \{ \begin{bmatrix} 15 & 1 & 10 & 12 & 12 & 15 & 9 \\ 2 & 4 & 1 & 5 & 6 & 7 & 8 \end{bmatrix}$$

$$T_{7} \begin{bmatrix} S := (& 9,3,10,15,12,10) \\ V := \{ & 3, & 9,10,11,12,13,14,15 \} \end{bmatrix}$$

$$P := \{ & 3, & 9,10,11,12,13,14,15 \} \}$$

$$W = V \setminus P := \{ & 11, & 13,14, & \}$$

$$\min W := & 11$$

$$A(T) := \{ \begin{bmatrix} 15 & 1 & 10 & 12 & 12 & 15 & 9 & 9 \\ 1 & 1 & 1 & 1 & 1 & 1 \\ 2 & 4 & 1 & 5 & 6 & 7 & 8 & 11 \end{bmatrix}$$

$$T_{8} \begin{bmatrix} S := (& 3, 10, 15, 12, 10) \\ V := \{ & 3, & 9, 10, & 12, 13, 14, 15 \} \end{bmatrix}$$

$$P := \{ & 3, & 10, & 12, & 13, 14, 15 \} \}$$

$$W = V \setminus P := \{ & 9, & 13, 14, & \}$$

$$\min W := \begin{bmatrix} 15 & 1 & 10 & 12 & 12 & 15 & 9 & 9 \\ 2 & 4 & 1 & 5 & 6 & 7 & 8 & 11 \end{bmatrix}$$

$$T_{8} \begin{bmatrix} S := (& 3, 10, 15, 12, 10) \\ V := \{ & 3, & 9, 10, & 12, 13, 14, 15 \} \end{bmatrix}$$

$$P := \{ & 3, & 10, & 12, & 13, 14, 15 \} \}$$

$$W = V \setminus P := \{ & 9, & 13, 14, & \}$$

$$\min W := 9$$

$$A(T) := \{ \begin{bmatrix} 15 & 1 & 10 & 12 & 12 & 15 & 9 & 9 \\ 1 & 1 & 1 & 1 & 10 & 12 & 12 & 15 & 9 & 9 \\ 2 & 4 & 1 & 5 & 6 & 7 & 8 & 11 \end{bmatrix}$$

$$T_{8} \begin{bmatrix} S := (& 3, 10, 15, 12, 10) \\ V := \{ & 3, & 9, 10, & 12, 13, 14, 15 \} \end{bmatrix}$$

$$P := \{ & 3, & 10, & 12, & 15 \}$$

$$W = V \setminus P := \{ & 9, & 13, 14, & \}$$

$$\min W := 9$$

$$A(T) := \{ \int_{2}^{15} \int_{4}^{1} \int_{1}^{10} \int_{5}^{12} \int_{6}^{12} \int_{7}^{15} \int_{8}^{9} \int_{11}^{9} \int_{9}^{9} \int_{1}^{3} \int_{1}^{3} \int_{1}^{10} \int_{12}^{12} \int_{15}^{15} \int_{9}^{9} \int_{11}^{9} \int_{11$$

$$T_{9} \qquad S := (10, 15, 12, 10)$$

$$V := \{ 3, 10, 12, 13, 14, 15 \}$$

$$P := \{ 10, 12, 13, 14, 15 \}$$

$$W = V \setminus P := \{ 3, 13, 14, 15 \}$$

$$\min W := 3$$

$$A(T) := \{ 15, 1, 10, 12, 12, 15, 9, 9, 3, 14, 15 \}$$

$$T_{9} \begin{tabular}{c}{c} S := (& 10,15,12,10) \\ V := \{ & 3, & 10, & 12,13,14,15 \, \} \\ P := \{ & 10, & 12, & 15 \, \} \\ W = V \setminus P := \{ & 3, & 13,14, & \} \\ \min W := & 3 \\ A(T) := \left\{ \begin{tabular}{c} 15 & 1 & 10 & 12 & 12 & 15 & 9 & 9 & 3 & 10 \\ 2 & 4 & 1 & 5 & 6 & 7 & 8 & 11 & 9 & 3 \\ \end{tabular} \right. \begin{tabular}{c} 3 & 10 & 12 & 12 & 15 & 9 & 9 & 3 & 10 \\ 2 & 4 & 1 & 5 & 6 & 7 & 8 & 11 & 9 & 3 \\ \end{tabular}$$

$$T_{10} \begin{bmatrix} S := (& 15, 12, 10) \\ V := \{ & 10, & 12, 13, 14, 15 \} \end{bmatrix}$$

$$P := \{ & 10, & 12, & 15 \}$$

$$W = V \setminus P := \{ & 13, 14, & \}$$

$$\min W := 13$$

$$A(T) := \{ \begin{bmatrix} 15 & 1 & 10 & 12 & 12 & 15 & 9 & 9 & 3 & 10 \\ 2 & 4 & 1 & 5 & 6 & 7 & 8 & 11 & 9 & 3 \end{bmatrix}$$

$$T_{11} \begin{bmatrix} S := (& 12,10) \\ V := \{ & 10, & 12, & 14, 15 \} \end{bmatrix}$$

$$P := \{ & 10, & 12, & 14, 15 \}$$

$$W = V \setminus P := \{ & 14, 15 \}$$

$$\min W := \begin{bmatrix} 15 & 1 & 10 & 12 & 12 & 15 & 9 & 9 & 3 & 10 & 15 \\ 2 & 4 & 1 & 5 & 6 & 7 & 8 & 11 & 9 & 3 & 13 \end{bmatrix}$$

$$T_{11} \begin{bmatrix} S := (& 12,10) \\ V := \{ & 10, & 12, & 14, 15 \} \end{bmatrix}$$

$$P := \{ & 10, & 12, & \}$$

$$W = V \setminus P := \{ & 14, 15 \}$$

$$\min W := 14$$

$$A(T) := \{ \begin{bmatrix} 15 & 1 & 10 & 12 & 12 & 15 & 9 & 9 & 3 & 10 & 15 \\ 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ 2 & 4 & 1 & 5 & 6 & 7 & 8 & 11 & 9 & 3 & 13 \end{bmatrix}$$

$$T_{13} \begin{bmatrix} S := (& & & & \\ V := \{ & & 10, & & 15 \} \end{bmatrix}$$

$$P := \{ & & & \\ W = V \setminus P := \{ & & 10, & & 15 \} \end{bmatrix}$$

$$\min W := \begin{bmatrix} 15 & 1 & 10 & 12 & 12 & 15 & 9 & 9 & 3 & 10 & 15 & 12 & 10 \\ 2 & 4 & 1 & 5 & 6 & 7 & 8 & 11 & 9 & 3 & 13 & 14 & 12 \end{bmatrix}$$

