Exercícios (souções) - Métobos Auno	Heativas
1- fundamentos	
(Somewhet exercícios de Consulta A MA	HeeiAIS)
2- Marzinsona Mal- 120/1501	
2-Nobeliasem Natemática	
2.1 Restages 7/ Reson Micks	
a) $x_2 - x_{\Delta} \ge \Delta$	
-Xa+ Xz 34	
	d) Xa + X2 > 3
b) Xa+2xz>3	
Xx + 2x2 & 6	e) X2 405
	Xx + Xe
c) Xz ≥ Xa	
X=-X2 SO	
-X1+X2 >0 -X1-X2 <0	
	5. 1111 91 (2)
	a) 5.1+44 = 21 (X) b) 5.2+4.2 = 18
	c) 53+4.15=21 Ofinal
2.2 Sources 71 Ressop Milks	b) 53+4.45=21 04ma d) 5.2+4.1 = 14
FUNÇÃO OBJECTIVO - MAXIMIZA Z = 5xo + 4	xz e) 5.2+4·(-1)=6 €
SOLUÇÃO CU // 2/1 V 2 1 C	does
0×1+4×2 = 64 ×1+××2 = 6	-X1+X2 \ X2 \ X1/2 \ Z0
a) X==1, x==4 61+44=22624 1+24=9>6	-1+4=3>1 4>2 1,4 ≥0
b) xa=2,xz=2 6.2+4.2=20624 2+2.2=666	-Z+Z=041 242 25 20
6) X ₃ =3, X ₂ =As 6·3+4·15=24274 3+2·15=646	-3+15=-15=1 15=2 3, 15>0
d) X1=2, X2=1 6.2+4.1=16624 2+2.1=466 e) X1=2, X2=1 6.2+4.(-1)=8624 2+2.(-1)=066	-2+1=-1=1 1=2 2,1=0 -2+(-1)=-3=1 1=2 2=0,-1=0
-,	2. (-3) 2-4 1 =0 (C-7) 120

23	Soboas 77 Reda	y MIKKS						
	PARA M1: 6x1+4	1x2 - 62+	-Z= Z.D.					
				de solv	10			
		, , ,		, , , ,	00.8			
	PARLA MZ: XL+Z	2x = 2+ 2.2	= C					
	THUR FIC. MICE			Sem €	iologo I			
				- COM((Solice !			
24	Descento 31 8	Zana Miki						
0-1	2= 25x1+4x	CEDBY II WAS	y . 2					
	2 / 5/1+9/	z , se	$X_1 \in C$					
)45x1+4x	z, se	X1 > 2.					
	1.0							
	La Função Z	té não l	inear?					
25	Os Processos							
	Maximizan Z	= 2x1 +3x2						
	Sujeilo a 10	1X1 + 2X2 + CA	Q					
		5x1+06x2 66						
		8x1 + 10x2 60						
		X1, X2 3						
		11, 12						
26	Frefreber							
	Maléria-Perma	Luceo						
	A 2	do	-	1)ough	de A pel	o meunh	Rock do	Lotal
	B 4	60		_ ^	, loo unio			0-4-0
	Max 240	00		1 Justino	, poe omo		0.	
	10 PC 10							
	Maninizar Joh	+ 50R						
	Maximizar 20A Sujeito a 2A	112 6 260						
	order to a M							
		A & 100	(8)	> 024	- 0'88 > 0			
			י נטיי	· UICK	- 0,06 % 0			
		A, 3 30						

27 O investige -5000 de investimento MArimizar Z = 0,05 A + 0,08 B - A Rende 5% (vierb a 4+3 < 5000 -B rande 8% A >0,75 (A+B) \$\leftarrow\$ 0,75A-0,75B >0 B 405 (A+B) -> -05A+05B 60 · Minimo 25% na A A > 05B - A-05B > 0 - Máximo 50% no B - A minimo metade B A,B 30 2.8 Oznak Commonity Collect MAXIMZAL Z= 1500 x1 + 1000 x2 Sujeito a X1 + X2 = 30 X, 310 X2310 29 JACK NA CLERN e = estudar d= diversão Marinizar Z= e + 2d Eyjeilo a e+d = 10 e 2 d => e-d 20 d.64 e, d >0 2.60 Show & Sell X -> minutos anúncio Paso 1/2 - Minutos anúmero TV Maximiza X1+25xe 15x1 +300x2 < 10000 X1 3 2x2 => X1-ZX2 30 X1 = 400 XL , X2 30

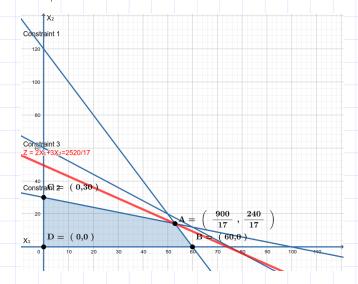
2.1.	<u>1</u> 0/8	empre	gos d	e John					
	Ϋ́	-> ho	ras bj	a 1	Mimmiza a	= 8x1+	6X2		
		-s hor	, ,	• .	Sujerto a				
				`		X2 < 12			
						X ₂ ≥6			
						12 < 10			
					X _L	+Xz 3 20			
						1, X2 3 O			
2.10	L Oil	Co							
			Idia d	0 800 (x 1000)			Demmya	8cã	Dugai
				e Subai (x 1000)	Med	iel	14000	0,2	0,1
						Durisa	30000	0,25	0,6
	Minniw	ja XI+	·Xz		LUB	esficantes	booo	0'T	0,15
		a 0,2xs		14		histiwa attas	8000	0,15	0,1
			+06xz 3			•			
			.+0,15xz >			- Minimo	40% 20	2eñ	
			L+QLXe ?			6 Restrontes			
				Xz) (=> 0,6x2-0,4Xe	OS				
			, Xz 30						
2.13	- Day	Trades							
	X	Proest	meulo	Phimeira lini	aQa				
	Xz -> 1	Pnoess	mento	alta lecus	logia				
		Carro G.		0.000					
	Minin	niza	x + X	.2					
		V		000 al 6 5×25,0.					
	200		X2 6	0,6(X,+Xz) c>	-0,6x2+ 0,4	X2 60			
				X2 20					

1.14 Scontag		
X1 - Esg	to k na mytura	
Xz + Rg	ръз 3 na miMura	
Miminut	a Z = 100x1+80x2	
Shows	$2 0.06 \times 1 + 0.03 \times 2 > 0.03$ $0.06 \times 1 + 0.03 \times 2 \le 0.06$	
	0,03 x2 + 0,06x2 > 0,03	
	0,03 x2 + 0,06 x2 ≤ 0,05	
	0,04 x1 +0,03 x2 > 0,03	
	0,04×2 +0,03 ×2 4 0,07	
	$x_1 + x_2 = 1$	
	X4, X2 30	
.15 Pnodução	de Poólies	
X1 -> (vodução de HiA-1	
X1 -> (
X2 -> (1	vodução de HiR-1	
X2 -> ()	nodução de HiPi-Z a Z= 16xs+16xz	
X2 -> ()	vodução de HiR-1 nodução de HiFi-Z a $Z = 16x_0 + 16x_2$ L $6x_0 + 4x_2 \le 480 \cdot 09$	
X2 -> ()	vodução de HiR-1 nodução de HiR-2 a $\mathcal{E} = 16x_0 + 16x_2$ b $6x_0 + 4x_2 \leq 480 \cdot 0.9$ $5x_0 + 5x_2 \leq 480 \cdot 0.86$	
X2 -> ()	vodução de HiR-1 nodução de HiR-2 a $\mathcal{E} = 16x_0 + 16x_2$ L $6x_0 + 4x_2 \leq 480 \cdot 0.9$ $5x_0 + 5x_2 \leq 480 \cdot 0.86$ $4x_0 + 6x_2 \leq 480 \cdot 0.88$	
X2 -> ()	vodução de HiR-1 nodução de HiR-2 a $\mathcal{E} = 16x_0 + 16x_2$ b $6x_0 + 4x_2 \leq 480 \cdot 0.9$ $5x_0 + 5x_2 \leq 480 \cdot 0.86$	
X2 -> ()	vodução de HiR-1 nodução de HiR-2 a $\mathcal{E} = 16x_0 + 16x_2$ L $6x_0 + 4x_2 \leq 480 \cdot 0.9$ $5x_0 + 5x_2 \leq 480 \cdot 0.86$ $4x_0 + 6x_2 \leq 480 \cdot 0.88$	
X2 -> ()	vodução de HiR-1 nodução de HiR-2 a $\mathcal{E} = 16x_0 + 16x_2$ L $6x_0 + 4x_2 \leq 480 \cdot 0.9$ $5x_0 + 5x_2 \leq 480 \cdot 0.86$ $4x_0 + 6x_2 \leq 480 \cdot 0.88$	
X2 -> ()	vodução de HiR-1 nodução de HiR-2 a $\mathcal{E} = 16x_0 + 16x_2$ L $6x_0 + 4x_2 \leq 480 \cdot 0.9$ $5x_0 + 5x_2 \leq 480 \cdot 0.86$ $4x_0 + 6x_2 \leq 480 \cdot 0.88$	
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X2 -> ()	vodução de HiR-1 nodução de HiR-2 a $\mathcal{E} = 16x_0 + 16x_2$ b $6x_0 + 4x_2 \leq 480 \cdot 0.9$ $5x_0 + 5x_2 \leq 480 \cdot 0.86$ $4x_0 + 6x_2 \leq 480 \cdot 0.88$	

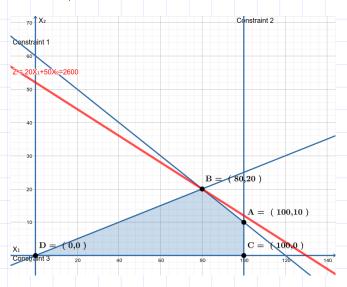
3- Nélos Gentico

3.1 Aplicação do método gráfico

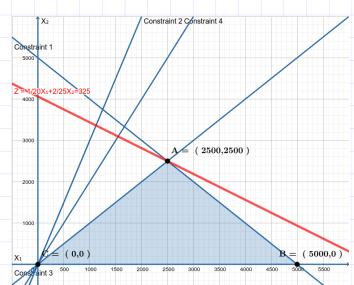
Os processos de produção



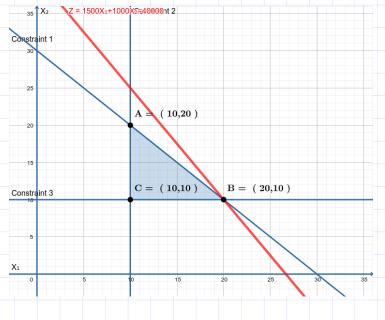
Fac Factory

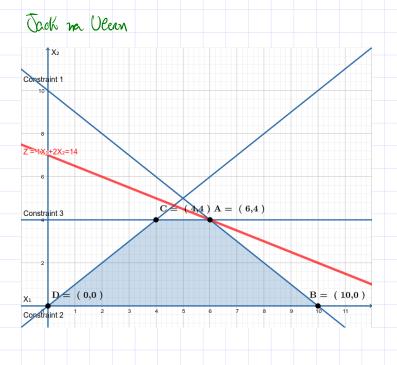


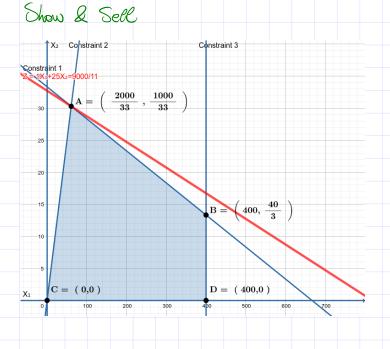




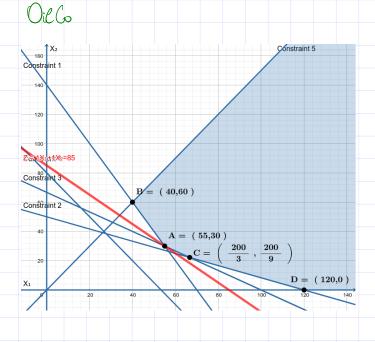




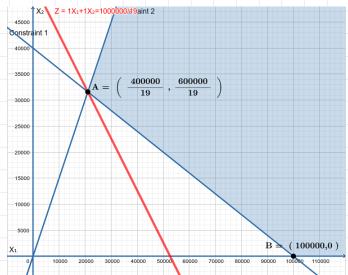




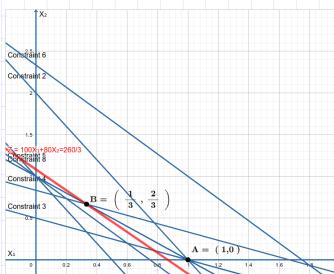
Observations of the constraint of the constrain

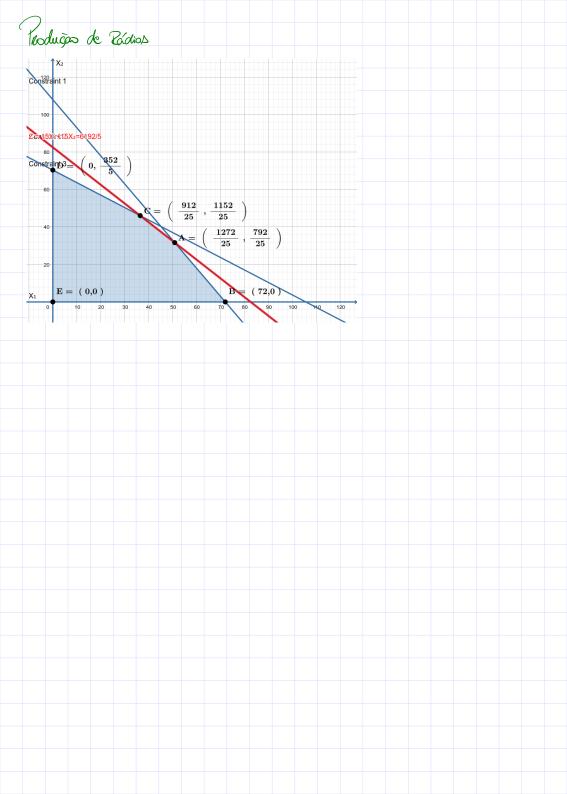












4-Mélois Simplex

Unciavois Não

BASICAS

(d

4.1 Bases do Simplex

a) Maximiza
$$dx_1 + 3x_2$$

Sujetto a $x_1 + 3x_2 + 5x_3 = 6$
 $dx_1 + 2x_2 + 6x_3 = 6$
 $dx_1 + 2x_2 + 6x_3 = 6$

Uhelmueis

BÁSICAS

	(X_L, X_2)	(S1, S2)	(6,6)	Sim	0
	(Xa, Sa)	(X2, S2)	(z, z)	Sim	6
	(Xa, Sz)	(X2,8r)	(3,-3)	NÃO	_
	(Xz, Sa)	(X2, 52)	(6,-1Z)	NÃO	-
	(X_2, ζ_2)	(X_2, S_2)	(2,4)	SIM	4
	(Sy, S2)	(XL, Xe)	(6/7, R/7)	SIM	6,86 (ókwn!)
d,e)					
	ConstraX₂ 2				
	3.5				
	$_{3}\mathcal{E}$ $Z = 2X_1 + 3X_2 = 48/7$				
	2.5				
	Constraint 1 B =	(0,2)			
	2	$A = \left(\begin{array}{c} 6 \\ 7 \end{array} \right)$, 12		
	1:5		7)		
	1				
	0.5				
	X ₁ D =	= (0,0)	Ç = (2,0)		F
	0	1 2	3	4 5	6

PUNÇÃO

OBJETUO

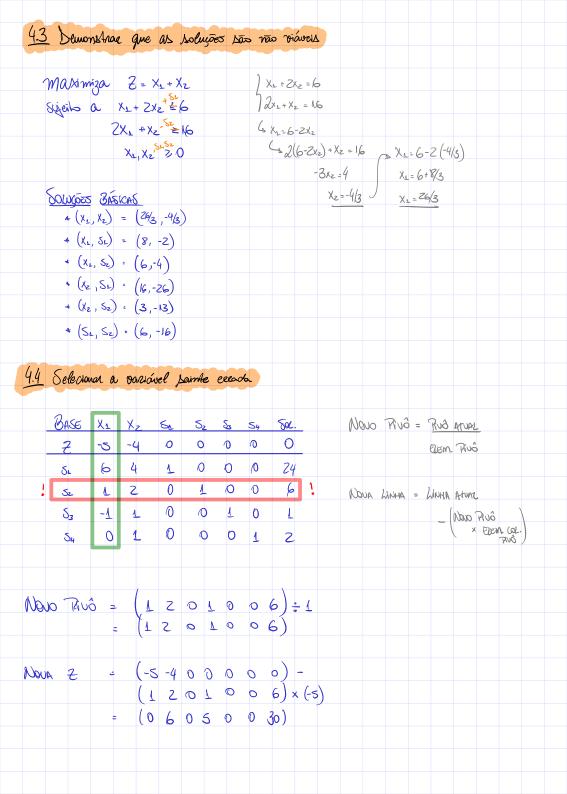
Brito D B

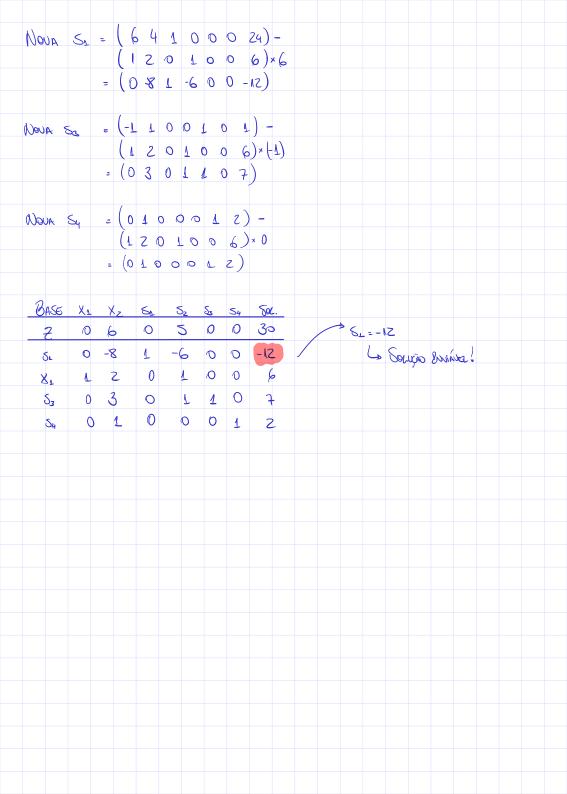
Viávez?

VALORES

4.2 Osmização poe enmelação de soluções básicas

Mosimips $z = 2x_1 - 4x_2 + 5x_3 - 6x_4$ Legisho a $x_1 + 4x_1 - 2x_3 + 8x_4 + 2x_3 - 6x_4$ Legisho a $x_1 + 4x_1 - 2x_3 + 8x_4 + 2x_3 - 6x_4$ $-x_1 + 2x_2 + 3x_3 + 4x_4 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 \pm 2$ $-x_1 + 2x_2 + 3x_3 + 4x_4 + 2x_2 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 + 2x_2 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 + 2x_2 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 + 2x_2 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 + 2x_2 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 + 2x_2 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 + 2x_2 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 + 2x_2 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 + 2x_2 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 + 2x_2 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 + 2x_2 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 + 2x_2 \pm 1$ $-x_1 + 2x_2 + 3x_3 + 4x_4 + 2x_4 + 4$ $-x_1 + x_1 + x_2 + x_3 + x_4 + $	7.2 Ulmizag	as por ensurera	yas de	soluções	basicas					
Legisho a $x_{k+}4x_{k-}-2x_{s}+8x_{4} \le 2$ $-x_{k+}2x_{k+}3x_{s}+4x_{4} \le 2$ $-x_{k+}2x_{k+}3x_{k}+2x_{k+}3x_{k+}3$ $-x_{k+}2x_{k+}3x_{k+}3x_{k+}3$ $-x_{k+}2x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k$										
Legisho a $x_{k+}4x_{k-}-2x_{s}+8x_{4} \le 2$ $-x_{k+}2x_{k+}3x_{s}+4x_{4} \le 2$ $-x_{k+}2x_{k+}3x_{k}+2x_{k+}3x_{k+}3$ $-x_{k+}2x_{k+}3x_{k+}3x_{k+}3$ $-x_{k+}2x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k+}3x_{k+}3$ $-x_{k$	Moximija	Z = 2x2-4x2 +	5x3-6x4		h	Toximpija	, Z= 6	Oxe-4xz +5x3-6	5×4	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	T T			(=>						
No. 3/A/ONS COLLYTON Z No. 3/A/ONS COLLYTON Z (X_1, X_2) (0, 1/2) -Z (X_2, X_3) (1/2, 10) -Z (X_1, X_3) (8, 3) 31 (01/14mr.!) (8_3, X_4) (0, 1/4) 3/2 (X_2, X_4) (0, 1/4) 3/2 (X_3, X_4) (0, 1/4) 3/2 (X_4, X_4) (0, 1/4) -3/2 (X_3, X_4) (1/3, 8/3) 5/3 (X_4, X_4) (1/4, 3) - (X_3, X_4) (1/4, 0) 3/2 (X_4, X_4) (1/4, 0) -Z (X_4, X_4) (X_4, X_4) (X_4, X_4, X_4, X_4, X_4, X_4, X_4, X_4,										
Ne. Básions Columb Z Ne. Básions Columb Z (χ_{2},χ_{2}) (χ										
$\begin{array}{cccccccccccccccccccccccccccccccccccc$										
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	VAR BÁSIDAS	Sowijas				VAR BA	is loas	Comás	<u> Z</u>	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	(XL, XZ)	(0,1/2)	ح-			(Xz)	Ss)	(1/2,0)	-Z	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$(X^{r} X^{s})$	(8,3)	31	(okma!		(X3)	X4)	(0, 1/4)	3/2	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	(x_, X4)	(0, 1/4)	-3/2			(X ₃	(82)	(1/3,8/3)	5/3	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	(XL, SL)	(-4,3)				(Ks)	(s2	(-1, 4)	_	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	(Xa, Sz)	(2,3)	4			(X4	, SL)	(1/4,0)	3/2	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	(X2, X3)	(4/2,0)	-2				-	(1/4,0)	-3/2	
$\begin{array}{llllllllllllllllllllllllllllllllllll$	(χ_{2},χ_{4})	(1/2, o)	-Z						0	
Minimize $Z = X_0 + Z_{X_2} - 3x_3 - Z_{X_4}$ Sujents a $X_{L} + Z_{X_2} - 3x_3 + X_4 = 4$ $X_{L} + Z_{X_2} + X_3 + Z_{X_4} = 4$ $X_{L} + Z_{L} + X_3 + Z_{L} = 4$ $X_{L} + Z_{L} + X_3 + Z_{L} = 4$ $X_{L} + Z_{L} + X_3 + Z_{L} = 4$ $X_{L} + Z_{L} + X_3 + Z_{L} = 4$ $X_{L} + Z_{L} + X_3 + Z_{L} = 4$ $X_{L} + Z_{L} + Z_{L} + Z_{L} + Z_{L} = 4$ $X_{L} + Z_{L} + Z_{L} + Z_{L} + Z_{L} = 4$ $X_{L} + Z_{L} + Z_{L} + Z_{L} + Z_{L} = 4$ $X_{L} + Z_{L} + Z_{L} + Z_{L} + Z_{L} = 4$ $X_{L} + Z_{L} + Z_{L} + Z_{L} + Z_{L} + Z_{L} = 4$ $X_{L} + Z_{L} + Z_{L} + Z_{L} + Z_{L} = 4$ $X_{L} + Z_{L} + Z_{L}$			-2							
Silento a $x_{1}+2x_{2}-3x_{3}+x_{4}=4$ $x_{1}+2x_{2}+x_{3}+2x_{4}=4$ $x_{1},x_{2},x_{3},x_{4}\geq0$ If the BASIONS COLUÇTION Z (x_{1},x_{2}) $(x_{1},x_{2})/x_{3}-2x_{2}=4$ (x_{1},x_{2}) $(x_{1},x_{2})/x_{3}-2x_{2}=4$ (x_{1},x_{2}) (x_{1},x_{2}) (x_{2},x_{3}) $(x_{1},x_{2})/x_{3}-2x_{2}=4$ (x_{2},x_{3}) (x_{2},x_{3})										
Silento a $x_{1}+2x_{2}-3x_{3}+x_{4}=4$ $x_{1}+2x_{2}+x_{3}+2x_{4}=4$ $x_{1},x_{2},x_{3},x_{4}\geq0$ If the BASIONS COLUÇTION Z (x_{1},x_{2}) $(x_{1},x_{2})/x_{3}-2x_{2}=4$ (x_{1},x_{2}) $(x_{1},x_{2})/x_{3}-2x_{2}=4$ (x_{1},x_{2}) (x_{1},x_{2}) (x_{2},x_{3}) $(x_{1},x_{2})/x_{3}-2x_{2}=4$ (x_{2},x_{3}) (x_{2},x_{3})										
Silento a $x_{1}+2x_{2}-3x_{3}+x_{4}=4$ $x_{1}+2x_{2}+x_{3}+2x_{4}=4$ $x_{1},x_{2},x_{3},x_{4}\geq0$ If the BASIONS COLUÇTION Z (x_{1},x_{2}) $(x_{1},x_{2})/x_{3}-2x_{2}=4$ (x_{1},x_{2}) $(x_{1},x_{2})/x_{3}-2x_{2}=4$ (x_{1},x_{2}) (x_{1},x_{2}) (x_{2},x_{3}) $(x_{1},x_{2})/x_{3}-2x_{2}=4$ (x_{2},x_{3}) (x_{2},x_{3})	Minima	2 - V. +2v-	3, -7	,						
$\begin{array}{cccccccccccccccccccccccccccccccccccc$										
$X_{L}, X_{2}, X_{3}, X_{4} \ge 0$ $X_{L}, X_{2}, X_{3}, X_{4} \ge 0$ X_{L}, X_{2}										
ARC BÁSICAS COLUÇÃO Z										
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		~L, ~2, ~3, ~	4 20							
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	llan zástans	COUNTRE	7							
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$					11/v. x.	1/4 2	46			
(x_{2}, x_{4}) $(4, 0)$ 4 (x_{2}, x_{3}) $(2, 0)$ 4 (x_{2}, x_{4}) $(2, 0)$ 4					1 (45,72)	/ / N.+ CX	z=7(
(x_2, x_3) $(z, 0)$ 4 (x_2, x_4) $(z, 0)$ 4										
(x_2, x_4) $(z, 0)$ 4	and the second second									
(1/2, 1/4) (1/17, 1/4) —			4							
	(Xs, X4)	(417, 44)								





Maximize z = 2x1 + x2 - 3x3 + x1 + 2x2 + 2x3 + 4x4 <= 40 2x1 - x2 - x3 - x4	1.0	01mg	olex	com	marion	s tu	nGes	obje	AUD			
		Table	au 1:									
1	a)		x1	x2	х3	x4	s1	s2	s3	z		
S2		s1	1	2	2	4	1	0	Θ	0	40	
		s2	2	-1	1	2	0	1	Θ	Θ	8	
Tableau 1: x1 x2 x3 x4 x4 x4 x4 x4 x4 x4 x4 x4		s3	4	-2	1	-1	0	0	1	0	10	471 - 272 + 73 - 74 \= 10
Tableau 1: x1								0	Θ	1	θ	
				0, x2 =	0, x3 = 0	, x4 = 6)					
		- 10010		x2	х3	x4	s1	s2	s3	z		
SS S S S S S S S S		s1	-3	4	0	Θ	1	-2	Θ	0	24	
Tableau 1:		x4	1	-1/2	1/2	1	0	1/2	Θ	0	4	
Tableau 1:		s3	5	-5/2	3/2	0	0	1/2	1	0	14	
Tableau 3:		z	3	-7/2	11/2	Θ	0	5/2	Θ	1	20	
				0, x2 =	0, x3 =	0, x4 =	4				'	
X2		rable		x2	х3	x4	s1	s2	s3	z		
Xi		x2	-3/4	1	0	0	1/4	-1/2	0		6	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		x4		0	1/2	1			Θ	Θ	7	
Tableau 1:		s3	25/8	Θ	3/2	Θ	5/8	-3/4	1	Θ	29	
Tableau 1:		z	3/8	0	11/2	0	7/8	3/4	Θ	1	41	
Tableau 1:		z = 4		0, x2 =	6, x3 =	0, x4 =					1	
Tableau 1: x1												
Tableau 1:												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		lesu 1										
s1 1 2 2 4 1 0 0 0 40 $2x1 - x2 + x3 + 2x4 < = 8$ s2 2 -1 1 2 0 1 0 0 8 $4x1 - 2x2 + x3 + 2x4 < = 8$ x3 4 -2 1 -1 0 0 1 0 10 z -6 -3 2 0 0 0 1 0 z = 0; x1 = 0, x2 = 0, x3 = 0, x4 = 0 Tableau 2: x1 x2 x3 x4 s1 s2 s3 z s2 0 0 1/4 0 75/2 z 0 -10 -1 0 0 75/2 z 0 -10 -1 0 0 0 0 0 0 0 z = 20; x1 = 5/2, x2 = 0, x3 = 0, x4 = 0 0 0 0 0 0 1/2 0 0 0 0 0 x2 0 0 0 1/2 0 0 0 0 <td>Idu</td> <td>- 1</td> <td>,</td> <td>2</td> <td>x3</td> <td>x4</td> <td>s1</td> <td>s2</td> <td>s3</td> <td>z</td> <td></td> <td></td>	Idu	- 1	,	2	x3	x4	s1	s2	s3	z		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	5	1 1		2	2	4	1	0	0	0	40	
s3 4 -2 1 -1 0 0 1 0 10 z -8 -6 -3 2 0 0 0 1 0 z = 0; x1 = 0, x2 = 0, x3 = 0, x4 = 0 Tableau 2: x1 x2 x3 x4 s1 s2 s3 z s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 -1/2 1/4 -1/4 0 5/2 -1/4 0 5/2 z 0 -10 -1 0 0 0 2 1 20 z = 20; x1 = 5/2, x2 = 0, x3 = 0, x4 = 0 Tableau 3: x1 x2 x3 x4 s1 s2 s3 z x2 0 0 1/2 5/2 0 -1/10 0 15 s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 0 3/5 3/5 1/5 0 1/5 0 10 z 0 0 6 17 4 0 1 1 1 <td></td>												
z -8 -6 -3 2 0 0 1 0 z = 0; x1 = 0, x2 = 0, x3 = 0, x4 = 0 Tableau 2: x1 x2 x3 x4 s1 s2 s3 z s1 0 5/2 7/4 17/4 1 0 -1/4 0 75/2 s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 -1/2 1/4 -1/4 0 0 1/4 0 5/2 z 0 -10 -1 0 0 0 2 1 20 z = 20; x1 = 5/2, x2 = 0, x3 = 0, x4 = 0 Tableau 3: x1 x2 x3 x4 x1 x1 x1 x1 x1 x2 x3 x4 x1 x1 x2 x3 x4 x4 x1 x1 x1 x2 x3 x4 x4 x4 x4 x4 x4 x4												$4x1 - 2x2 + x3 - x4 \le 10$
z = 9; x1 = 9, x2 = 9, x3 = 9, x4 = 9 Tableau 2: x1 x2 x3 x4 s1 s2 s3 z s1 9 5/2 7/4 17/4 1 9 -1/4 9 75/2 s2 9 9 1/2 5/2 9 1 -1/2 9 3 x1 1 -1/2 1/4 -1/4 9 9 1/4 9 5/2 z 9 -10 -1 9 9 9 2 1 20 z = 20; x1 = 5/2, x2 = 9, x3 = 9, x4 = 9 Tableau 3: x1 x2 x3 x4 s1 s2 s3 z x2 9 9 1 7/10 17/10 2/5 9 -1/10 9 15 s2 9 9 1/2 5/2 9 1 -1/2 9 3 x1 1 9 3/5 3/5 1/5 9 1/5 9 10 z 9 9 9 6 17 4 9 1 1 1 170	_											
Tableau 2: x1							0	Θ	Θ	1	Θ	
s1 0 5/2 7/4 17/4 1 0 -1/4 0 75/2 s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 -1/2 1/4 -1/4 0 0 1/4 0 5/2 z 0 -10 -1 0 0 0 0 1 20 z = 20; x1 = 5/2, x2 = 0, x3 = 0, x4 = 0 Tableau 3: x2 0 1 7/10 17/10 2/5 0 -1/10 0 15 s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 0 3/5 3/5 1/5 0 1/5 0 10 z 0 0 6 17 4 0 1 1 170			-,	,								
s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 -1/2 1/4 -1/4 0 0 1/4 0 5/2 z 0 -10 -1 0 0 0 2 1 20 z = 20; x1 = 5/2, x2 = 0, x3 = 0, x4 = 0 Tableau 3: x1 x2 x3 x4 s1 s2 s3 z x2 0 1 7/10 1/10 2/5 0 -1/10 0 15 s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 0 3/5 3/5 1/5 0 1/5 0 10 z 0 0 6 17 4 0 1 1 170		x1	k	2	х3	x4	s1	s2	s3	z		
x1 1 -1/2 1/4 -1/4 0 0 1/4 0 5/2 z 0 -10 -1 0 0 0 2 1 20 z = 20; x1 = 5/2, x2 = 0, x3 = 0, x4 = 0 Tableau 3: x1 x2 x3 x4 s1 s2 s3 z x2 0 1 7/10 17/10 2/5 0 -1/10 0 15 s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 0 3/5 3/5 1/5 0 1/5 0 10 z 0 0 6 17 4 0 1 1 170	s.	1 0	5	/2	7/4 1	7/4	1	0	-1/4	Θ	75/2	
z 0 -10 -1 0 0 0 2 1 20 z = 20; x1 = 5/2, x2 = 0, x3 = 0, x4 = 0 Tableau 3: x1 x2 x3 x4 s1 s2 s3 z x2 0 1 7/10 17/10 2/5 0 -1/10 0 15 s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 0 3/5 3/5 1/5 0 1/5 0 10 z 0 0 6 17 4 0 1 1 170	S	2 0		9 :	1/2	5/2	Θ	1	-1/2	Θ	3	
z 0 -10 -1 0 0 0 2 1 20 z = 20; x1 = 5/2, x2 = 0, x3 = 0, x4 = 0 Tableau 3: x1 x2 x3 x4 s1 s2 s3 z x2 0 1 7/10 17/10 2/5 0 -1/10 0 15 s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 0 3/5 3/5 1/5 0 1/5 0 10 z 0 0 6 17 4 0 1 1 170	х.	1 1	-1	/2	1/4 -	-1/4	Θ	Θ	1/4	Θ	5/2	
z = 20; x1 = 5/2, x2 = 0, x3 = 0, x4 = 0 Tableau 3: x1 x2 x3 x4 s1 s2 s3 z x2 0 1 7/10 17/10 2/5 0 -1/10 0 15 s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 0 3/5 3/5 1/5 0 1/5 0 10 z 0 0 6 17 4 0 1 1 170		z 0					Θ	Θ		1		
x1 x2 x3 x4 s1 s2 s3 z x2 0 1 7/10 17/10 2/5 0 -1/10 0 15 s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 0 3/5 3/5 1/5 0 1/5 0 10 z 0 0 6 17 4 0 1 1 170												
x2 0 1 7/10 17/10 2/5 0 -1/10 0 15 s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 0 3/5 3/5 1/5 0 1/5 0 10 z 0 0 6 17 4 0 1 1 170	Tab	1										
s2 0 0 1/2 5/2 0 1 -1/2 0 3 x1 1 0 3/5 3/5 1/5 0 1/5 0 10 z 0 0 6 17 4 0 1 1 170		x1	χ.	2	х3	х4	s1	s2	s3	Z		
x1 1 0 3/5 3/5 1/5 0 1/5 0 10 z 0 0 6 17 4 0 1 1 170	X	2 0		1 7	/10 1	7/10	2/5	Θ	-1/10	Θ	15	
z 0 0 6 17 4 0 1 1 170	S	2 0		9	1/2	5/2	Θ	1	-1/2	Θ	3	
	x.	1 1		9 :	3/5	3/5	1/5	0	1/5	Θ	10	
z = 170; x1 = 10, x2 = 15, x3 = 0, x4 = 0		z 0		Э	6	17	4	0	1	1	170	
	Z =	170; x1	= 10,	x2 = 15	5, x3 = 0), x4 =	0				'	

	v1	$(2 + 2x)^{2}$	$2 \perp 1 \sqrt{1}$		+ 4×4					
		(2 + 2x. 2 + x3 -								
		x2 + x3 ·								
Table	au 1:									
	x1	x2	х3	x4	s1	s2	s3	Z		
s1	1	2	2	4	1	0	Θ	Θ	40	
s2	2	-1	1	2	Θ	1	Θ	Θ	8	
s3	4	-2	1	-1	Θ	Θ	1	Θ	10	
z	-3	1	-3	-4	Θ	0	0	1	Θ	
- 1		, x2 = θ,			•			-	1	
Table	au 2:									
	x1	x2	х3	x4	s1	s2	s3	Z		
s1	-3	4	Θ	Θ	1	-2	Θ	Θ	24	
х4	1	-1/2	1/2	1	Θ	1/2	0	Θ	4	
s3	5	-5/2	3/2	0	Θ	1/2	1	Θ	14	
z	1	-1	-1	0	Θ	2	0	1	16	
- 1		9, x2 = 6								
Table	au 3:									
	x1	x2	х3	x4	s1	s2	s3	Z		
x2	-3/4	1	Θ	Θ	1/4	-1/2	Θ	Θ	6	
х4	5/8	Θ	1/2	1	1/8	1/4	Θ	Θ	7	
s3	25/8	Θ	3/2	Θ	5/8	-3/4	1	Θ	29	
z	1/4	Θ	-1	0	1/4	3/2	0	1	22	
z = 2	2; x1 = 6	0, x2 = 6	i, x3 = 0	x4 = 7					I	
Table	au 4:								I	
	x1	х2	х3	х4	s1	s2	s3	Z		
x2	-3/4	1	Θ	Θ	1/4	-1/2	Θ	Θ	6	
хЗ	5/4	Θ	1	2	1/4	1/2	0	Θ	14	
s3	5/4	Θ	Θ	-3	1/4	-3/2	1	Θ	8	
z	3/2	Θ	Θ	2	1/2	2	Θ	1	36	
z = 3	6; x1 = (0, x2 = 6	i, x3 = 1	4, x4 =	θ				'	

	Minimi	ze z = F	5x1 - 4x	2 + 6x3	- 8x4					
			3 + 4x4		0,					
			+ 2×4 <							
	4x1 - 2	$x^2 + x^3$	3 - ×4 <=	= 10						
Table	au 1:	_	_			_			I	
	x1	х2	х3	х4	s1	s2	s3	-z		
s1	1	2	2	4	1	Θ	Θ	Θ	40	
s2	2	-1	1	2	θ	1	Θ	Θ	8	
s3	4	-2	1	-1	Θ	Θ	1	Θ	10	
- 53	4	-2	1	-1	0		1		10	
-z	5	-4	6	-8	θ	Θ	θ	1	Θ	
	; x1 = 0	, x2 = 0	, x3 = θ,	x4 = 0						
Table	au 2:								I	
	x1	x2	х3	х4	s1	s2	s3	-z		
s1	-3	4	Θ	θ	1	-2	Θ	Θ	24	
x4	1	-1/2	1/2	1	Θ	1/2	. θ	θ	4	
_										
s3	5	-5/2	3/2	θ	θ	1/2	1	θ	14	
-z	13	-8	10	θ	θ	4	Θ	1	32	
	32; x1 =	0, x2 =	0, x3 =	0, x4 =	4					
Table	au 3:								ı	
	x1	х2	х3	х4	s1	s2	s3	-z		
x2	-3/4	1	Θ	θ	1/4	-1/2	θ	Θ	6	
x4	5/8	θ	1/2	1	1/8	1/4	Θ	θ	7	
s3	25/8	θ	3/2	θ	5/8	-3/4	1	θ	29	
-z	7	θ	10	θ	2	Θ	Θ	1	80	
z = -	80; x1 =	0, x2 =	6, x3 =	0, x4 =	7					

4.6 Magrama com zesteição imea Soluções háncas possuem uma úmea variável + 0. hosos

Solução ótima: X = 90 , 7= 5.90 = 450 + X2=90/3=30 , 7=-6:30=-180 X1=90, X2=0, X3=0, X4=0, X5=0 X3=90/5=18, E= 3-18=54 6 7-450

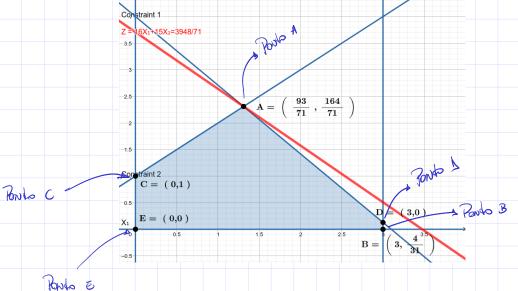
X4 = 90/6 = 15 , Z= -5.15 = -75

Xs=90/3=30 , 7=12.30= 360

4.7 Testando variavers entrantes

Maximiza 2= 16x1 + 15x2 Sujeto a 40x1+31x2+51 = 124 $-X_{L} + X_{2} + S_{2} = 1$ $-X_1 + \delta_3 = 3$

X1, X2, S1, S2, S3 20



Constraint 3

1.	2:1.						Maximize $z = 16x1 + 15x$
- A (o uter	acoes	vs E-				40x1 + 31x2 <= 124
							-x1 + x2 <= 1
							x1 <= 3
Tablea		2	-1	-2	-2	_	
\rightarrow	x1	х2	s1	s2	s3	Z	
s1	40	31	1	Θ	Θ	Θ	124
s2	-1	1	0	1	Θ	Θ	1
s3	1	0	Θ	0	1	Θ	3
z		-15		Θ	Θ	1	0
		, x2 = 6)			'	
Tablea		3	-1	-3	e2	_	
\rightarrow	x1	х2			s3	Z	
s1	Θ	31	1	Θ	-40	Θ	4
s2	Θ	1	Θ	1	1	Θ	4
x1	1	0	0	0	1	Θ	3
z	Θ	-15	Θ	0	16	1	48
		3, x2 =	Θ			'	
Tablea		ν3	c1	63	.2	_	
	x1		s1			z	<u> </u>
х2	0			0	-40/31	Θ	4/31
s2	Θ	0	-1/31	1	71/31	Θ	120/31
x1	1	0	Θ	0	1	Θ	3
Z	Θ	0	15/31	0	-104/31	1	1548/31
		x1 = 3,	x2 = 4/31	l			
Tablea		ν3	c1	63	c ²	-	
\rightarrow	x1	х2	s1	s2	s3	Z	
х2	Θ	1	1/71	40/71	Θ	0	164/71
s3	Θ	0	-1/71	31/71	1	0	120/71
x1	1	0	1/71	-31/71	Θ	Θ	93/71
z	Θ	0	31/71	104/71	Θ	1	3948/71
z = 39	48/71;	x1 = 93/	71, x2 =	164/71			1

b) Yerroree or partor E→C→A. Lo 2 iterações

c) O cartério de escolha da roariável intrante (maior imparto na função objetivo) é uma nevasítica. A experiência mostra que, em média, esse cartério é mais eficiente. No entando, ele <u>Não</u> garante o menor número de iteraGões para chegar m polícão ótima!

3948/71

Minimize z = -16x1 - 15x2 40x1 + 31x2 <= 124 -x1 + x2 <= 1x1 <= 3

d) Mesmas iterações, modando o hinal da linha 2 (função objetivo)!

Table	au I.						1	
	x1	x2	s1	s2	s3	-z		
s1	40	31	1	0	0	Θ	124	
s2	-1	1	0	1	Θ	Θ	1	
s3	1	Θ	0	Θ	1	Θ	3	

s1	Θ	31	1	Θ	-40	Θ	4
s2	Θ	1	0	1	1	Θ	4
x1	1	0	0	Θ	1	Θ	3
-z	Θ	-15	0	Θ	16	1	48

z = -48; x1 = 3, x2 = 0Tableau 3:

Tableau 1

	~-	~_					
x2	Θ	1	1/31	0	-40/31	Θ	4/31
s2	Θ	Θ	-1/31	1	71/31	Θ	120/3
x1	1	0	0	0	1	Θ	3
-z	Θ	0	15/31	Θ	-104/31	1	1548/3
z = -	1548/31;	x1 = 3,	x2 = 4/3	1			'
Table	au 4:						
	x1	x2	s1	s2	s3	-z	
x2	Θ	1	1/71	40/71	Θ	0	164/71
e3	А	А	-1/71	31/71	1	А	128/71

104/71

3948/71; x1 = 93/71, x2 = 164/71