1. Determine a solução óptima do seguinte problema de programação linear usando o método simplex.

$$
\begin{array}{lrcl}
\max & 1x_1 + 2x_2 & & \\
\text{suj. a} & -1x_1 + 1x_2 & \leq & 4 \\
& 1x_2 & \leq & 6 \\
& 1x_1 + 1x_2 & \leq & 10 \\
& x_1,\ x_2 & \geq & 0
\end{array}
$$

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& x_1,\ x_2 & \geq & 0
\end{array}
$$

	z	x1	x2	s1	s2	s3		
s1	0	-1	1	1	0	0	4	4/1 = 4
s2	0	0	1	0	1	0	6	6/1
s3	0	1	1	0	0	1	10	10/1
z	1	-1	-2	0	0	0	0	

	z	x1	x2	s1	s2	s3		
s1	0	-1	1	1	0	0	4	
s2	0	0	1	0	1	0	6	L2
s3	0	1	1	0	0	1	10	L3
z	1	-1	-2	0	0	0	0	L4

	1	-1	-2	0	0	0	0	L4
	0	-2	2	2	0	0	8	2 LP
	1	-3	0	2	0	0	8	

	z	x1	x2	s1	s2	s3		
x2	0	-1	1	1	0	0	4	LP
	0	1	0	-1	1	0	2	L2 – 1 * LP
	0	2	0	-1	0	1	6	L3 – 1 * LP
	1	-3	0	2	0	0	8	L4 + 2 * LP

	z	x1	x2	s1	s2	s3	
s1	0	-1	1	1	0	0	4
s2	0	0	1	0	1	0	6
s3	0	1	1	0	0	1	10
z	1	-1	-2	0	0	0	0

	z	x1	x2	s1	s2	s3		
x2	0	-1	1	1	0	0	4	L1
s2	0	1	0	-1	1	0	2	S2 = 2 -1 x1 + 1s1
s3	0	2	0	-1	0	1	6	L3
z	1	-3	0	2	0	0	8	L4

	z	x1	x2	s1	s2	s3		
x2	0	0	1	0	1	0	6	L1 + 1 * LP
x1	0	1	0	-1	1	0	2	LP
s3	0	0	0	1	-2	1	2	L3 – 2 * LP
z	1	0	0	-1	3	0	14	L4 + 3 * LP

	z	x1	x2	s1	s2	s3	
s1	0	-1	1	1	0	0	4
s2	0	0	1	0	1	0	6
s3	0	1	1	0	0	1	10
z	1	-1	-2	0	0	0	0

	z	x1	x2	s1	s2	s3		
x2	0	-1	1	1	0	0	4	L1
s2	0	1	0	-1	1	0	2	S2 = 2 -1 x1 + 1s1
s3	0	2	0	-1	0	1	6	L3
z	1	-3	0	2	0	0	8	L4

	z	x1	x2	s1	s2	s3		
x2	0	0	1	0	1	0	6	L1 + 1 * LP
x1	0	1	0	-1	1	0	2	LP
s3	0	0	0	1	-2	1	2	L3 – 2 * LP
z	1	0	0	-1	3	0	14	L4 + 3 * LP

	z	x1	x2	s1	s2	s3	
s1	0	-1	1	1	0	0	4
s2	0	0	1	0	1	0	6
s3	0	1	1	0	0	1	10
z	1	-1	-2	0	0	0	0

	z	x1	x2	s1	s2	s3	
x2	0	-1	1	1	0	0	4
s2	0	1	0	-1	1	0	2
s3	0	2	0	-1	0	1	6
z	1	-3	0	2	0	0	8

S1* = 2

S2* = 0

S3* = 0

X1* = 4

X2* = 6

Z* = 16

	z	x1	x2	s1	s2	s3	
x2	0	0	1	0	1	0	6
x1	0	1	0	-1	1	0	2
s3	0	0	0	1	-2	1	2
z	1	0	0	-1	3	0	14

	z	x1	x2	s1	s2	s3		
X2	0	0	1	0	1	0	6	L1
X1	0	1	0	0	-1	1	4	L2 + LP
S1	0	0	0	1	-2	1	2	LP
Z	1	0	0	0	1	1	16	L4 + LP