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Interfaz de usuario gráfica, Texto

Descripción generada automáticamente

Se busca Minz=10x1 + 15x2 + 8x3 -MR1

Agregamos las variables de holgura

20X1 + 30 X2 + 5X3 + s1 = 100

60X1 + 50X2 + 38X3 + s2 = 300

9X1 + 8X2 + 8X3 - s3+ R1 = 70

Con x mayor a cero

R1= 70-9x1-8x2 -8x3 + s3

Ahora Z=10x1 + 15x2 + 8x3 -M(70-9x1-8x2 -8x3 + s3)

Con la tabla queda:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X1 | X2 | X3 | S1 | S2 | S3 | R1 | Solución |
| Z | -9M | -8M | -8M | 0 | 0 | -1 | M | 70 |
| S1 | 20 | 30 | 5 | 1 | 0 | 0 | 0 | 10 |
| S2 | 60 | 5 | 38 | 0 | 1 | 0 | 0 | 300 |
| R1 | 9 | 8 | 8 | 0 | 0 | -1 | 1 | 70 |

Entra x1 y sale s1

Dividimos el renglón pivote por 20

Para Z multiplicamos el renglón pivote por 9M y sumamos Z+x1

Para s1 multiplicamos el renglón pivote por 20 y restamos s1-x1

Para s2 multiplicamos el renglón pivote por 60 y restamos s2-x1

Para R1 multiplicamos el renglón pivote por 9 y restamos R1-x1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X1 | X2 | X3 | S1 | S2 | S3 | R1 | Solución |
| Z | 0 | -5.5 | 5.75 | -0.45 | 0 | -1 | 0 | 25 |
| X1 | 1 | 1.5 | 0.25 | 0.05 | 0 | 0 | 0 | 5 |
| S2 | 0 | -40 | 23 | -3 | 1 | 0 | 0 | 0 |
| R1 | 0 | -5.5 | 5.75 | -0.45 | 0 | -1 | 1 | 25 |

Entra x3 y sale x2

Para Z multiplicamos el renglón pivote por 5.75 y sumamos Z+x3

Para x1 multiplicamos el renglón pivote por 0.25 y restamos x1-x3

Para s2 multiplicamos el renglón pivote por 23 y restamos s2-x3

Para R1 multiplicamos el renglón pivote por 5.75 y restamos R1-x3

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X1 | X2 | X3 | S1 | S2 | S3 | R1 | Solución |
| Z | 0 | 9/2 | 0 | 3/10 | -1/4 | -1 | 0 | 25 |
| X1 | 1 | 89/46 | 0 | 19/230 | -1/92 | 0 | 0 | 5 |
| X3 | 0 | -40/23 | 1 | -3/23 | 1/23 | 0 | 0 | 0 |
| R1 | 0 | 9/2 | 0 | 3/10 | -1/4 | -1 | 1 | 25 |

Entra x2 y sale x1

Para Z multiplicamos el renglón pivote por 9/2 y sumamos Z+x3

Para x1 multiplicamos el renglón pivote por 89/46 y restamos x1-x3

Para x3 multiplicamos el renglón pivote por -40/23 y restamos x3-x3

Para R1 multiplicamos el renglón pivote por 9/20 y restamos R1-x2

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X1 | X2 | X3 | S1 | S2 | S3 | R1 | Solución |
| Z | -207/89 | 0 | 0 | 48/445 | -20/89 | -1 | 0 | 1190/89 |
| X2 | 46/89 | 1 | 0 | 19/445 | -1/178 | 0 | 0 | 230/89 |
| X3 | 80/89 | 0 | 1 | -5/89 | 3/89 | 0 | 0 | 400/89 |
| R1 | -207/89 | 0 | 0 | 47/445 | -20/89 | -1 | 1 | 1190/89 |

Entra s1 y sale x2

Para Z multiplicamos el renglón pivote por -48/445 y sumamos Z+s1

Para x2 multiplicamos el renglón pivote por 19/445 y restamos x1-s1

Para x3 multiplicamos el renglón pivote por -5/89 y restamos x3-s1

Para R1 multiplicamos el renglón pivote por 47/445 y restamos R1-s1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X1 | X2 | X3 | S1 | S2 | S3 | R1 | Solución |
| Z | -69/19 | -48/19 | 0 | 0 | -4/19 | -1 | 0 | 130/19 |
| S1 | 230/19 | 445/19 | 0 | 1 | -5/38 | 0 | 0 | 1150/19 |
| X3 | 30/19 | 25/19 | 1 | 0 | 1/38 | 0 | 0 | 150/19 |
| R1 | -69/19 | -48/19 | 0 | 0 | -4/19 | -1 | 1 | 1190/89 |

Llegamos la conclusión que no hay solución a nuestro problema porque nos quedan variables artificiales en la base.