Ejercicio 3

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| COSTO DE DISTRIBUCIÓN POR CARGA DEL CAMIÓN | | | | | | | | |
| PANIFICADORA | M1 | M2 | M3 | M4 | M5 | M6 | Oferta | |
| B1 | $14 | $24 | $30 | $50 | $44 | $16 | 22 | |
| B2 | $20 | $14 | $16 | $32 | $16 | $14 | 18 | |
| B3 | $16 | $11 | - | $18 | $26 | $45 | 29 | |
| B4 | $35 | $26 | $18 | - | $20 | $50 | 24 | |
| Demanda | 16 | 18 | 15 | 20 | 10 | 5 | 84 | 93 |

primer paso.

Obtenemos la penalización restando el menor costo de cada fila o columna de su inmediato superior

como el total de oferta es mayor a la demanda se hace una fila ficticia y su demanda sera la que falta para 93

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| COSTO DE DISTRIBUCIÓN POR CARGA DEL CAMIÓN | | | | | | | | | |
| PANIFICADORA | M1 | M2 | M3 | M4 | M5 | M6 | Ficticia | Oferta | diferencia |
| B1 | $14 | $24 | $30 | $50 | $44 | $16 | 0 | 22 | 44-14=30 |
| B2 | $20 | $14 | $16 | $32 | $16 | $14 | 0 | 18 | 16-14=2 |
| B3 | $16 | $11 | - | $18 | $26 | $45 | 0 | 29 | 26-11=15 |
| B4 | $35 | $26 | $18 | - | $20 | $50 | 0 | 24 | 20-18=2 |
| Demanda | 16 | 18 | 15 | 20 | 10 | 5 | 9 | 93 |  |
| Diferencia | 14-16=2 | 14-11=3 | 18-16=2 | 32-18=14 | 20-16=4 | 16-14=2 |  |  |  |

segundo paso.

Seleccionar la fila o columna con mayor penalización y ubicar su menor costo

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| COSTO DE DISTRIBUCIÓN POR CARGA DEL CAMIÓN | | | | | | | | | |
| PANIFICADORA | M1 | M2 | M3 | M4 | M5 | M6 | Ficticia | Oferta | diferencia |
| B1 | **$14** | $24 | $30 | $50 | $44 | $16 | 0 | 22 | 44-14=30 |
| B2 | $20 | $14 | $16 | $32 | $16 | $14 | 0 | 18 | 16-14=2 |
| B3 | $16 | $11 | - | $18 | $26 | $45 | 0 | 29 | 26-11=15 |
| B4 | $35 | $26 | $18 | - | $20 | $50 | 0 | 24 | 20-18=2 |
| Demanda | 16 | 18 | 15 | 20 | 10 | 5 | 9 | 93 |  |
| Diferencia | 14-16=2 | 14-11=3 | 18-16=2 | 32-18=14 | 20-16=4 | 16-14=2 |  |  |  |

tercer paso.

Obtener el menor valor entre la oferta y demanda en la intersección encontrada en el paso anterior y restarlo del otro.

El menor valor entre oferta y demanda:

min(22,16) = 16

Luego la diferencia será:

22-16=6

cuarto paso.

Eliminar aquella fila o columna con menor oferta o demanda. Regresar al paso 1 hasta que ya no se pueda hacer mas reducciones.

En este caso eliminaremos la fila columna M1 ya que su demanda es menor a la oferta de esa interseccion

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| COSTO DE DISTRIBUCIÓN POR CARGA DEL CAMIÓN | | | | | | | | |
| PANIFICADORA | M2 | M3 | M4 | M5 | M6 | Ficticia | Oferta | diferencia |
| B1 | $24 | $30 | $50 | $44 | **$16** | 0 | 6 | 44-16=28 |
| B2 | $14 | $16 | $32 | $16 | $14 | 0 | 18 | 16-14=2 |
| B3 | $11 | 0 | $18 | $26 | $45 | 0 | 29 | 26-11=15 |
| B4 | $26 | $18 | 0 | $20 | $50 | 0 | 24 | 20-18=2 |
| Demanda | 18 | 15 | 20 | 10 | 5 | 9 | 77 |  |
| Diferencia | 14-11=3 | 18-16=2 | 32-18=14 | 20-16=4 | 16-14=2 |  |  |  |

min(6,5) = 6

Luego la diferencia será:

6-5=1

aquí se elimina M6 ya que es el menor entre la interseccion

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| COSTO DE DISTRIBUCIÓN POR CARGA DEL CAMIÓN | | | | | | | |
| PANIFICADORA | M2 | M3 | M4 | M5 | Ficticia | Oferta | diferencia |
| B1 | **$24** | $30 | $50 | $44 | 0 | 1 | 44-24=20 |
| B2 | $14 | $16 | $32 | $16 | 0 | 18 | 16-14=2 |
| B3 | $11 | 0 | $18 | $26 | 0 | 29 | 18-11=7 |
| B4 | $26 | $18 | 0 | $20 | 0 | 24 | 20-18=2 |
| Demanda | 18 | 15 | 20 | 10 | 9 | 72 |  |
| Diferencia | 24-11=13 | 18-16=2 | 32-18=14 | 26-16=10 |  |  |  |

El menor valor entre oferta y demanda:

min(18,1) = 1

Luego la diferencia será:

18-1=17

aquí se elimina B1

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| COSTO DE DISTRIBUCIÓN POR CARGA DEL CAMIÓN | | | | | | | |
| PANIFICADORA | M2 | M3 | M4 | M5 | Ficticia | Oferta | diferencia |
| B2 | $14 | $16 | $32 | $16 | 0 | 18 | 16-14=2 |
| B3 | **$11** | 0 | $18 | $26 | 0 | 29 | 18-11=7 |
| B4 | $26 | $18 | 0 | $20 | 0 | 24 | 20-18=2 |
| Demanda | 17 | 15 | 20 | 10 | 9 | 71 |  |
| Diferencia | 24-11=13 | 18-16=2 | 32-18=14 | 26-16=10 |  |  |  |

El menor valor entre oferta y demanda:

min(29,17) = 17

Luego la diferencia será:

29-17=12

aquí se elimina M2

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| COSTO DE DISTRIBUCIÓN POR CARGA DEL CAMIÓN | | | | | | |
| PANIFICADORA | M3 | M4 | M5 | Ficticia | Oferta | diferencia |
| B2 | $16 | $32 | $16 | 0 | 18 | 16-16=0 |
| B3 | 0 | **$18** | $26 | 0 | 12 | 26-18=8 |
| B4 | $18 | 0 | $20 | 0 | 24 | 20-18=2 |
| Demanda | 15 | 20 | 10 | 9 | 54 |  |
| Diferencia | 18-16=2 | 32-18=14 | 26-16=10 |  |  |  |

El menor valor entre oferta y demanda:

min(12,20) = 12

Luego la diferencia será:

20-12=8

aquí se elimina B3

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| COSTO DE DISTRIBUCIÓN POR CARGA DEL CAMIÓN | | | | | | |
| PANIFICADORA | M3 | M4 | M5 | Ficticia | Oferta | diferencia |
| B2 | $16 | $32 | $16 | 0 | 18 | 16-16=0 |
| B4 | **$18** | 0 | $20 | 0 | 24 | 20-18=2 |
| Demanda | 15 | 8 | 10 | 9 | 42 |  |
| Diferencia | 18-16=2 | 32-18=14 | 26-16=10 |  |  |  |

El menor valor entre oferta y demanda:

min(24,15) = 15

Luego la diferencia será:

24-15=9

aquí se elimina M3

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| COSTO DE DISTRIBUCIÓN POR CARGA DEL CAMIÓN | | | | | |
| PANIFICADORA | M4 | M5 | Ficticia | Oferta | diferencia |
| B2 | $32 | $16 | 0 | 18 | 16 |
| B4 | 0 | **$20** | 0 | 9 | 20 |
| Demanda | 8 | 10 | 9 | 27 |  |
| Diferencia | 32-18=14 | 26-16=10 |  |  |  |

El menor valor entre oferta y demanda:

min(9,10) = 9

Luego la diferencia será:

10-9=1

aquí se elimina B4

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| COSTO DE DISTRIBUCIÓN POR CARGA DEL CAMIÓN | | | | | |
| PANIFICADORA | M4 | M5 | Ficticia | Oferta | diferencia |
| B2 | $32 | $16 | 0 | 18 | 16 |
| Demanda | 8 | 1 | 9 | 18 |  |
| Diferencia | 32-18=14 | 26-16=10 |  |  |  |

Ahora aplicamos el procedimiento a nuestra tabla

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| COSTO DE DISTRIBUCIÓN POR CARGA DEL CAMIÓN | | | | | | | | |
| PANIFICADORA | M1 | M2 | M3 | M4 | M5 | M6 | Ficticia | Oferta |
| B1 | **$14** | **$24** | $30 | $50 | $44 | **$16** | 0 | 22 |
| 16 | -1 |  |  |  | 6 |
| B2 | $20 | $14 | **$16** | $32 | $16 | $14 | 0 | 18 |
|  |  | 18 |  |  |  |
| B3 | $16 | **$11** | - | **$18** | $26 | $45 | 0 | 29 |
|  | 17 |  | 12 |  |  |
| B4 | $35 | $26 | **$18** | - | $20 | $50 | 0 | 24 |
|  |  | 15 |  | 9 |  |
| Demanda | 16 | 18 | 15 | 20 | 10 | 5 | 9 | 93 |

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| Ruta | Unidades | Costo | Total |
| B1M6 | 6 | $16 | 96 |
| B1M1 | 16 | $14 | 224 |
| B1M2 | 1 | $24 | 24 |
| B2M3 | 18 | $16 | 288 |
| B3M2 | 17 | $11 | 187 |
| B3M4 | 12 | $18 | 216 |
| B4M3 | 15 | $18 | 270 |
| B4M5 | 9 | $20 | 180 |
| Total | 94 |  | 1485 |