4.4.9

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| Z | -2 | 1 | -1 | 0 | 0 | 0 | 0 |
|  | 3 | 1 | 1 | 1 | 0 | 0 | 6 |
|  | 1 | -1 | 2 | 0 | 1 | 0 | 1 |
|  | 1 | 1 | -1 | 0 | 0 | 1 | 2 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| Z | -2 | 1 | -1 | 0 | 0 | 0 | 0 |
|  | 3 | 1 | 1 | 1 | 0 | 0 | 6 |
|  | 1 | -1 | 2 | 0 | 1 | 0 | 1 |
|  | 1 | 1 | -1 | 0 | 0 | 1 | 2 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| Z | -2 + 2(1) | 1 + 2(-1) | -1 + 2(2) | 0 | 0 + 2(1) | 0 | 0 + 2(1) |
|  | 3 – 3(1) | 1 – 3(-1) | 1 – 3(2) | 1 – 3(0) | 0 – 3(1) | 0 – 3(0) | 6 – 3(1) |
|  | 1 | -1 | 2 | 0 | 1 | 0 | 1 |
|  | 1 – 1(1) | 1 – 1(-1) | -1 -1(2) | 0 | 0 – 1(1) | 1 | 2 – 1(1) |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| Z | 0 | -1 | 3 | 0 | 2 | 0 | 2 |
|  | 0 | 4 | -5 | 1 | -3 | 0 | 3 |
|  | 1 | -1 | 2 | 0 | 1 | 0 | 1 |
|  | 0 | 2 | -3 | 0 | -1 | 1 | 1 |

Como ainda temos um valor negativo em Z neste caso no então devemos continuar

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| Z | 0 | -1 | 3 | 0 | 2 | 0 | 2 |
|  | 0 | 4 | -5 | 1 | -3 | 0 | 3 |
|  | 1 | -1 | 2 | 0 | 1 | 0 | 1 |
|  | 0 | 2 | -3 | 0 | -1 | 1 | 1 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| Z | 0 | -1 | 3 | 0 | 2 | 0 | 2 |
|  | 0 | 4 | -5 | 1 | -3 | 0 | 3 |
|  | 1 | -1 | 2 | 0 | 1 | 0 | 1 |
|  | 0 | 2 / 2 | -3 / 2 | 0 / 2 | -1/2 | 1/2 | 1/2 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| Z | 0 | -1 + 1(1) | 3+1(-1.5) | 0 | 2+1(-1/2) | 0+1(0.5) | 2 + 1(0.5) |
|  | 0 | 4 – 4(1) | -5 – 4(-1.5) | 1 | -3-4(-0.5) | 0-4(0.5) | 3-4(0.5) |
|  | 1 | -1 + 1(1) | 2 + 1(-1.5) | 0 | 1 + 1(-0.5) | 0+1(0.5) | 1 + 1(0.5) |
|  | 0 | 1 | -1.5 | 0 | -0.5 | 0.5 | 0.5 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| Z | 0 | 0 | 1.5 | 0 | 1.5 | 0.5 | 2.5 |
|  | 0 | 0 | 1 | 1 | -1 | -2 | 1 |
|  | 1 | 0 | 0.5 | 0 | 0.5 | 0 .5 | 1.5 |
|  | 0 | 1 | -1.5 | 0 | -0.5 | 0.5 | 0.5 |

O problema não é um caso especial e o Z = 2.5

4.5.3

a)

Uma imagem com file, Paralelo, Gráfico, diagrama

Os conteúdos gerados por IA poderão estar incorretos.

e) para

Max

s.a

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
| Z | 1 | -1 | 0 | 0 | 0 |
|  | -2 | -1 | 1 | 0 | 20 |
|  | 1 | -2 | 0 | 1 | 20 |

Todos os coeficientes são negativos logo Z é ilimitado

4.5.4.

40

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| Z | -5 | -1 | -3 | -4 | 0 | 0 | 0 | 0 |
|  | 1 | -2 | 4 | 3 | 1 | 0 | 0 | 20 |
|  | -4 | 6 | 5 | -4 | 0 | 1 | 0 | 40 |
|  | 2 | -3 | 3 | 8 | 0 | 0 | 1 | 50 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| Z | -5+5(1) | -1+5(-2) | -3+5(4) | -4+5(3) | 0+5(1) | 0 | 0 | 0+5(20) |
|  | 1 | -2 | 4 | 3 | 1 | 0 | 0 | 20 |
|  | -4+4(1) | 6+4(-2) | 5+4(4) | -4+4(3) | 0+4(1) | 1 | 0 | 40+4(20) |
|  | 2-2(1) | -3-2(-2) | 3-2(4) | 8-2(3) | 0-2(1) | 0 | 1 | 50-2(20) |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| Z | 0 | -11 | 17 | 11 | 5 | 0 | 0 | 100 |
|  | 1 | -2 | 4 | 3 | 1 | 0 | 0 | 20 |
|  | 0 | -2 | 21 | 8 | 4 | 1 | 0 | 120 |
|  | 0 | 1 | -5 | 2 | -2 | 0 | 1 | 10 |

Como ainda existe um número negativo em Z então continuamos

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| Z | 0 | -11 | 17 | 11 | 5 | 0 | 0 | 100 |
|  | 1 | -2 | 4 | 3 | 1 | 0 | 0 | 20 |
|  | 0 | -2 | 21 | 8 | 4 | 1 | 0 | 120 |
|  | 0 | 1 | -5 | 2 | -2 | 0 | 1 | 10 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| Z | 0 | -11+11(1) | 17+11(-5) | 11+11(2) | 5+11(-2) | 0 | 0+11(1) | 100+11(10) |
|  | 1 | -2+2(1) | 4+2(-5) | 3+2(2) | 1+2(-2) | 0 | 0+2(1) | 20+2(10) |
|  | 0 | -2+2(1) | 21+2(-5) | 8+2(2) | 4+2(-2) | 1 | 0+2(1) | 120+2(10) |
|  | 0 | 1 | -5 | 2 | -2 | 0 | 1 | 10 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| Z | 0 | 0 | -38 | 33 | -17 | 0 | 11 | 210 |
|  | 1 | 0 | -6 | 7 | -3 | 0 | 2 | 40 |
|  | 0 | 0 | 11 | 12 | 0 | 1 | 2 | 140 |
|  | 0 | 1 | -5 | 2 | -2 | 0 | 1 | 10 |

Como ainda existe um número negativo em Z então continuamos

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| Z | 0 | 0 | -38+38(1) | 33+38(12/11) | -17 | 38(1/11) | 11+38(2/11) | 210 |
|  | 1 | 0 | -6+6(1) | 7+6(12/11) | -3 | 6(1/11) | 2+6(2/11) | 40 |
|  | 0 | 0 | 1 | 12/11 | 0/11 | 1/11 | 2/11 | 140/11 |
|  | 0 | 1 | -5+5(1) | 2+5(12/11) | -2 | 5(1/11) | 1+5(2/11) | 10 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| Z | 0 | 0 | 0 | 74.456 | -17 | 3.455 | 17.909 | 693.636 |
|  | 1 | 0 | 0 | 13.545 | -3 | 0.545 | 3.091 | 116.364 |
|  | 0 | 0 | 1 | 12/11 | 0/11 | 1/11 | 0.182 | 12.7273 |
|  | 0 | 1 | 0 | 7.454 | -2 | 0.455 | 1.909 | 73.6364 |

Como ainda existe um número negativo em Z então continuamos

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| Z | 0 | 0 | 0 | 74.456 | -17 | 3.455 | 17.909 | 693.636 |
|  | 1 | 0 | 0 | 13.545 | -3 | 0.545 | 3.091 | 116.364 |
|  | 0 | 0 | 1 | 12/11 | 0/11 | 1/11 | 0.182 | 12.7273 |
|  | 0 | 1 | 0 | 7.454 | -2 | 0.455 | 1.909 | 73.6364 |

Como tem todos os coeficientes negativos ou zero, então concluímos que Z é ilimitado.