

Tarea #1

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Ejercicio 1

1.1. Datos

- $r = 5$
- $c_1 = 2$
- $c_2 = 3$
- $c_3 = 5$
- $k = 8$

Inventario Optimo (Q)

$$Q = \sqrt{2} \sqrt{\frac{c_3 r (c_1 + c_2)}{c_1 c_2 \left(1 - \frac{r}{k}\right)}}$$

$$Q = \sqrt{2} \sqrt{\frac{(5)(5)((2)+(3))}{(2)(3)\left(1 - \frac{(5)}{(8)}\right)}}$$

$$Q = 10,541$$

Inventario Maximo (S)

$$S = \sqrt{2} \sqrt{\frac{c_2 c_3 r \left(1 - \frac{r}{k}\right)}{c_1 (c_1 + c_2)}}$$

$$S = \sqrt{2} \sqrt{\frac{(3)(5)(5)\left(1 - \frac{(5)}{(8)}\right)}{(2)((2)+(3))}}$$

$$S = 2,372$$

Costo Normal (C)

$$C = \sqrt{2} \sqrt{\frac{c_1 c_2 c_3 r \left(1 - \frac{r}{k}\right)}{c_1 + c_2}}$$

$$C = \sqrt{2} \sqrt{\frac{(2)(3)(5)(5) \left(1 - \frac{5}{8}\right)}{(2) + (3)}}$$

$$C = 4,743$$

Carencia Maxima (D)

$$D = Q - S$$

$$D = (10,5409) - (2,3717)$$

$$D = 8,169$$

Tiempo en agotarse el inventario (t2)

$$t2 = \sqrt{2} \sqrt{\frac{c_2 c_3 \left(1 - \frac{r}{k}\right)}{c_1 r (c_1 + c_2)}}$$

$$t2 = \sqrt{2} \sqrt{\frac{(3)(5) \left(1 - \frac{5}{8}\right)}{(2)(5)((2) + (3))}}$$

$$t2 = 0,474$$

Tiempo de produccion (t1)

$$t1 = \sqrt{\frac{r t_2}{k - r}}$$

$$t1 = \sqrt{\frac{(5)(0,4743)}{(8) - (5)}}$$

$$t1 = 0,889$$

Tiempo incurrido en faltantes (t3)

$$t3 = \sqrt{2} \sqrt{\frac{c_1 c_3 \left(1 - \frac{r}{k}\right)}{c_2 r (c_1 + c_2)}}$$

$$t3 = \sqrt{2} \sqrt{\frac{(2)(5) \left(1 - \frac{(5)}{(8)}\right)}{(3)(5)((2)+(3))}}$$

$$t3 = 0,316$$

Tiempo en recuperar los faltantes (t4)

$$t4 = \sqrt{\frac{rt_3}{k-r}}$$

$$t4 = \sqrt{\frac{(5)(0,3162)}{(8)-(5)}}$$

$$t4 = 0,726$$