Tarea #1

Renato Flores, 201709244

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Ejercicio 1

1.1. Datos

- r = 5
- c1 = 2
- c2 = 3
- c3 = 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)

$$t4 = \sqrt{\frac{r t_3}{k - r}}$$

$$t4 = \sqrt{\frac{(5)(0{,}3162)}{(8)-(5)}}$$
$$t4 = 0{,}726$$