SIMPLIFICATION DE SCHEMA - BLOCS

1- $H(p) = \frac{S(p)}{E(p)} = \frac{k \times \frac{1}{p} \times 2}{1 + k \times \frac{1}{p} \times 2} \Rightarrow \boxed{H(p) = \frac{1}{1 + \frac{p}{2k}}}$

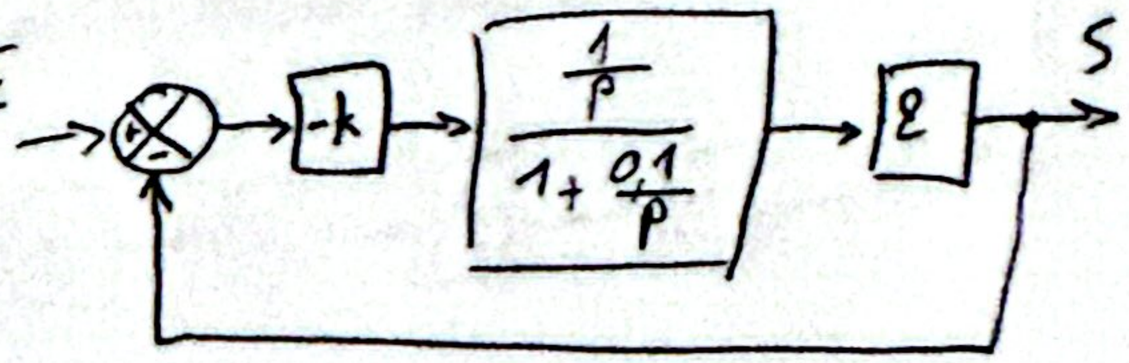
forme canonique du 1er ordre $\frac{K}{1+Tp}$ avec $\begin{cases} K = 1 \\ T = \frac{1}{2k} \end{cases}$

2- $H(p) = \frac{\frac{2k}{1+p}}{1 + \frac{2k}{1+p}} = \frac{2k}{1+p+2k}$

$\boxed{H(p) = \frac{\frac{2k}{1+2k}}{1 + \frac{1}{1+2k} p}}$ 1er ordre $\begin{cases} K = \frac{2k}{1+2k} \\ T = \frac{1}{1+2k} \end{cases}$

3- idem ☺

4- Δ au $\otimes$ $\Rightarrow$

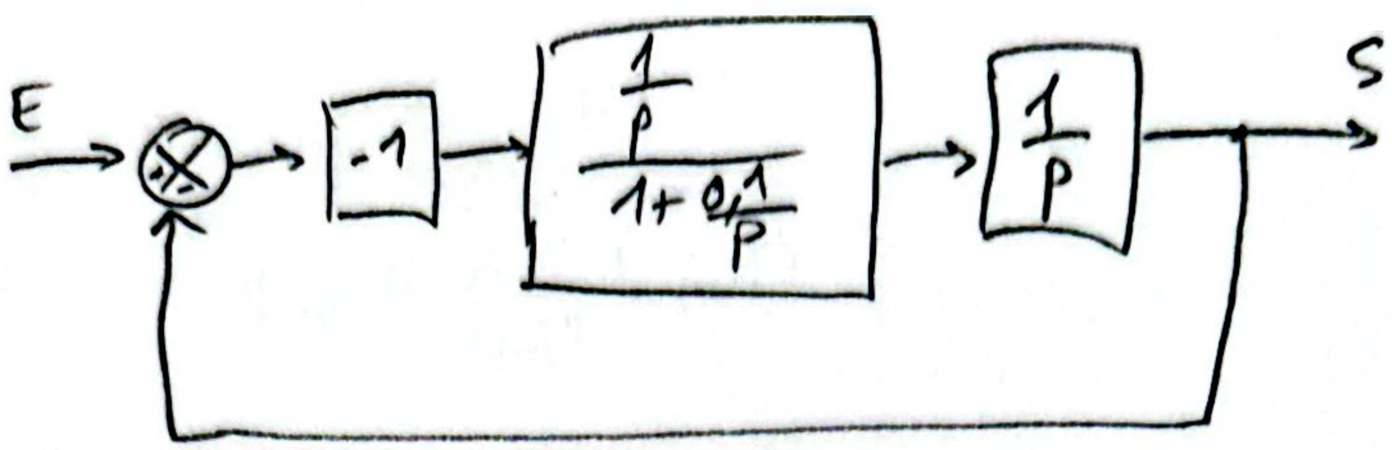


$H(p) = \frac{-k \times \frac{1}{p+0,1} \times 2}{1 - k \times \frac{1}{p+0,1} \times 2} = \frac{-2k}{p+0,1-2k}$

$\boxed{H(p) = \frac{\frac{-2k}{0,1-2k}}{1 + \frac{1}{0,1-2k} p}}$ 1er ordre $\begin{cases} K = \frac{-2k}{0,1-2k} \\ T = \frac{1}{0,1-2k} \end{cases}$

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5-



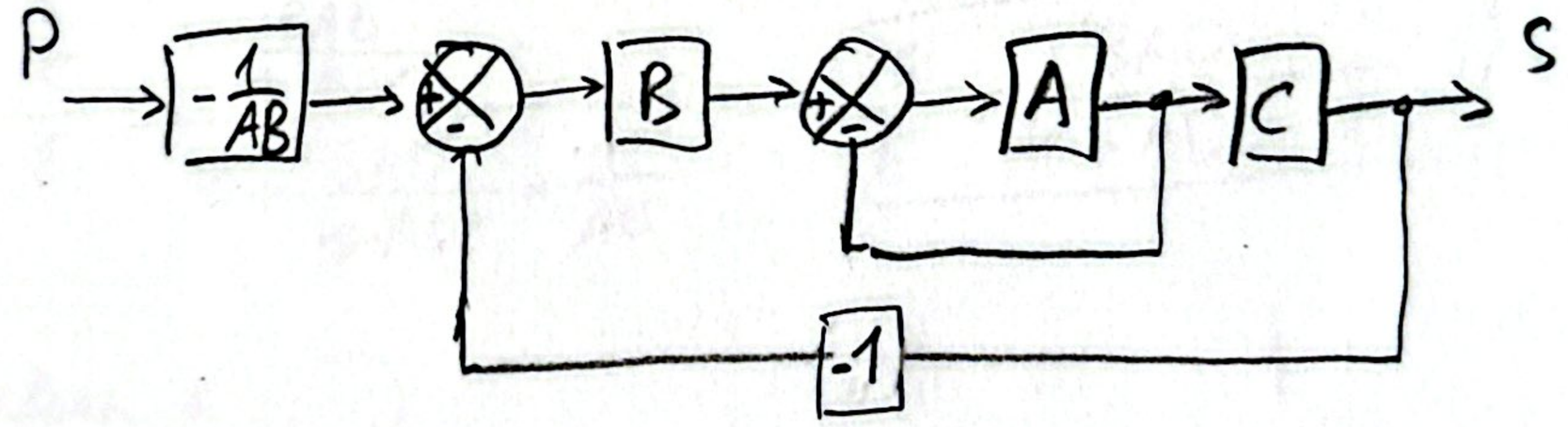
$$H(p) = \frac{-1 \times \frac{1}{p+0,1} \times \frac{1}{p}}{1 \quad -1 \times \frac{1}{p+0,1} \times \frac{1}{p}} = \frac{-1}{(p+0,1)p - 1}$$

$$\boxed{H(p) = \frac{1}{1 - 0,1p - p^2}}$$

⚠ ne peut pas être identifié à la forme $\frac{K}{1 + \frac{2\xi}{\omega_0} p + \frac{p^2}{\omega_0^2}}$

on pourra démontrer que les signes - correspondent à un système instable. La forme canonique du 2nd ordre du cours correspond à un système stable.

6-



$$\frac{S}{P} = H = -\frac{1}{AB} \frac{B \frac{A}{1+A} C}{1 + B \cdot \frac{A}{1+A} \cdot C \cdot (-1)}$$

$$H = -\frac{1}{AB} \frac{\frac{BAC}{1+A}}{1 - \frac{BAC}{1+A}} = -\frac{C}{1+A-BAC}$$

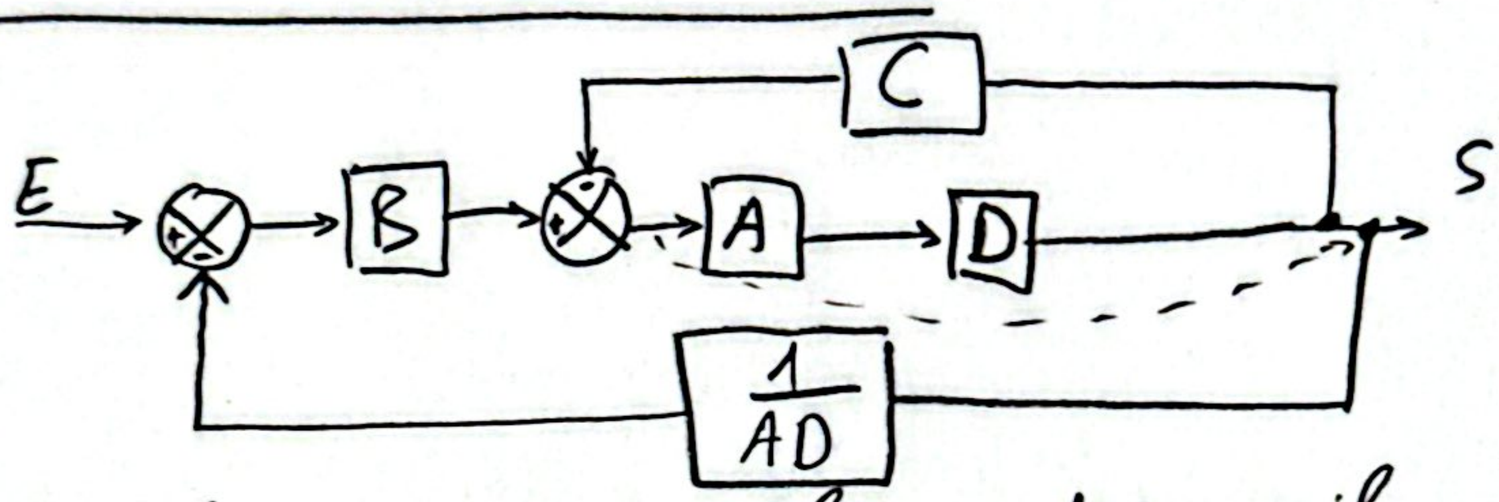
$$\boxed{\frac{S(p)}{P(p)} = -\frac{C(p)}{1 + A(p) - B(p)A(p) \cdot C(p)}}$$

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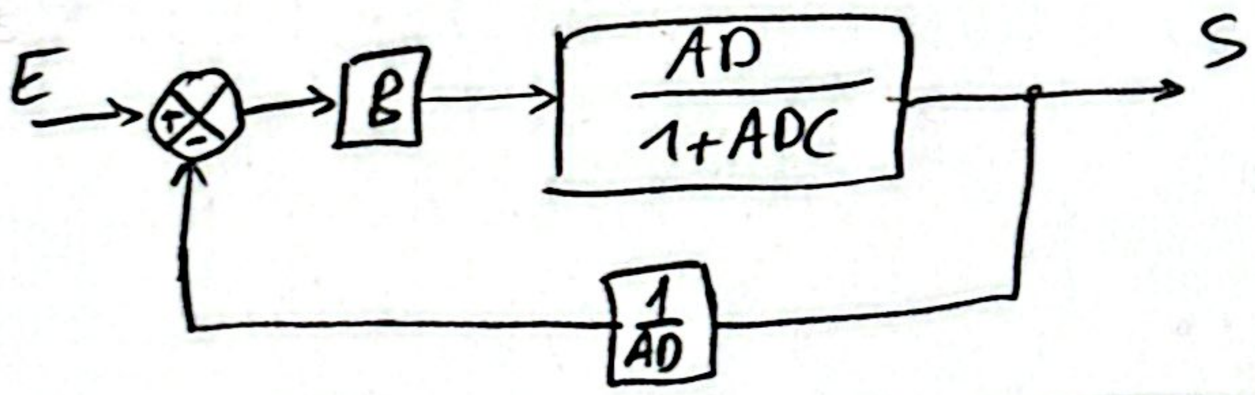
7- $$\frac{S}{E} = \frac{-C\,\frac{A}{1+A^2}\,B}{1 - C\,\frac{A}{1+A^2}\,B\,(-1)}$$

$$\boxed{\frac{S(p)}{E(p)} = \frac{-C(p)A(p)B(p)}{1+A^2(p)+C(p)A(p)B(p)}}$$

8 -



2 décalages de point de prélèvement successifs



$$\frac{S}{E} = \frac{\frac{BAD}{1+ADC}}{1 + \frac{BAD}{1+ADC} \times \frac{1}{AD}} \Rightarrow \boxed{\frac{S}{E} = \frac{BAD}{1+ADC+B}}$$

9 - idem 6 ☺

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