

TD 1

Exercice 1: quelles moines construire?

$$1) \begin{cases} e + bd = 1 \\ d + ac = 1 \\ ab + ce = 1 \\ c + de = 1 \end{cases}$$

$$2) X \Rightarrow Y \Leftrightarrow \bar{x} + y = 1$$

X	Y	$X \Rightarrow Y$	$\bar{X} \vee Y$
V	V	V	V
V	F	F	F
F	V	V	V
F	F	V	V

$$\begin{matrix} F=0 \\ V=1 \end{matrix}$$

$$\bar{e} + c = 1$$

$$\bar{b}c + (d + ae) = 1 \Leftrightarrow \bar{b} + \bar{c} + d + ae = 1$$

$$3) (e + bd) \cdot (d + ac) \cdot (ab + ce) \cdot (c + de) \cdot (\bar{e} + c) \cdot (\bar{b} + \bar{c} + d + ae) = 1$$

$$(ed + ace + bd + dbcd) \cdot (abc + abde + ce + cde) \cdot (\bar{e}\bar{b} + \bar{c}\bar{e} + d\bar{e} + ae\bar{e} + \bar{b}c + c\bar{c} + cd + ace) = 1$$

$$(ed + ace + bd) \cdot (abc + abde + ce) \cdot (\bar{e}\bar{b} + \bar{c}\bar{e} + d\bar{e} + \bar{b}c + cd + ace) = 1$$

$$(abcde + abde + cde + abce + abcde + ace + abcd + abde + bcde) \cdot$$

$$(\bar{e}\bar{b} + \bar{c}\bar{e} + d\bar{e} + \bar{b}c + cd + ace) = 1$$

$$(abde + cde + abce + ace + abcd + abde) \cdot (\bar{e}\bar{b} + \bar{c}\bar{e} + d\bar{e} + \bar{b}c + cd + ace) = 1$$

$$(abde + ace + cde + abcd) \cdot (\bar{e}\bar{b} + \bar{c}\bar{e} + d\bar{e} + \bar{b}c + cd + ace) = 1$$

$$abcde + abcde + abce + acde + ace + \bar{b}cde + cde + acde + abcd\bar{e} + abcd + acde = 1$$

$$ace + \bar{b}cde + cde + abcd\bar{e} + abcd = 1$$

$$ace + cde + abcd = 1$$

$$\underline{c(abd + de + ae) = 1}$$

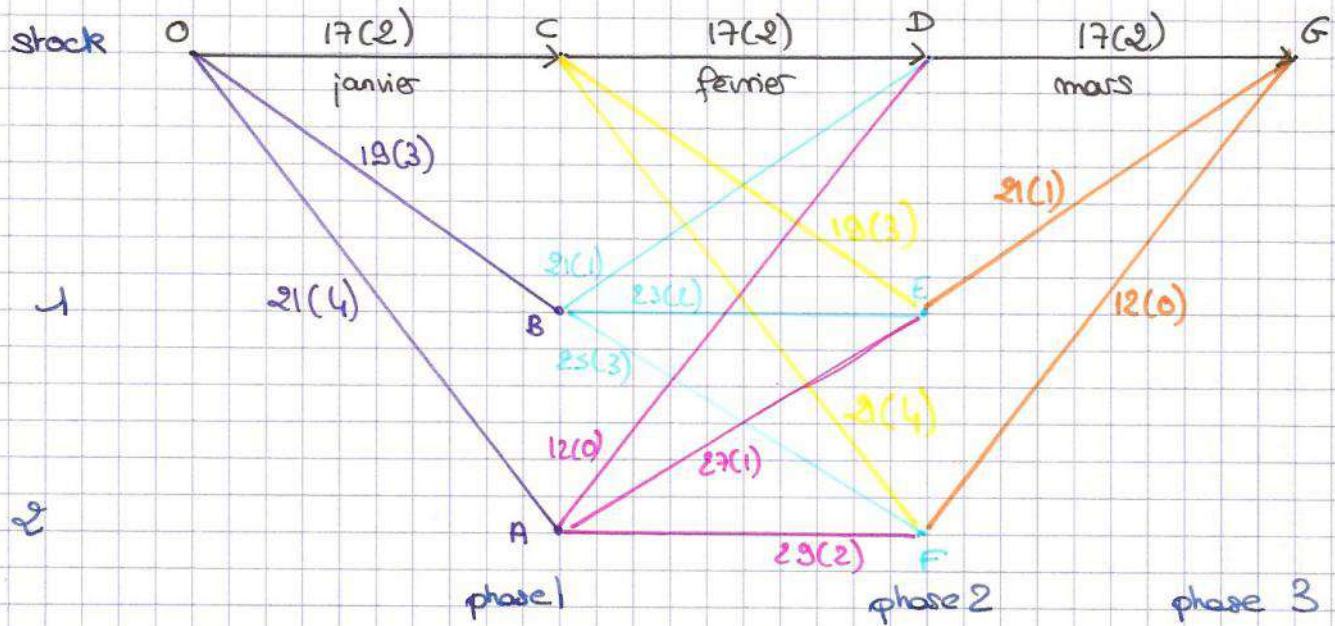
$$\begin{cases} \bar{c} = 1 \\ abd + de + ae = 1 \end{cases}$$

→ 3 cas

$$\begin{matrix} c=1 & a=1 & b=1 & d=1 \\ c=1 & d=1 & e=1 \\ c=1 & a=1 & e=1 \end{matrix}$$

$$\begin{matrix} 20DE \\ 18DE \\ 21DE \end{matrix}$$

Exercice 2: un problème de stocks



Phase 1 :

$$\begin{aligned} OC &= 17 \\ OB &= 19 \\ OA &= 21 \end{aligned}$$

Phase 2 :

$$\begin{aligned} OCD &= 17 + 17 = 34 \\ OCE &= 17 + 19 = 36 \\ OCF &= 17 + 21 = 38 \\ OBD &= 19 + 21 = 40 \\ OBE &= 19 + 23 = 42 \\ OBF &= 19 + 25 = 44 \\ OAD &= 21 + 12 = 33 \\ OAE &= 21 + 27 = 48 \\ OAF &= 21 + 29 = 50 \end{aligned}$$

Phase 3 :

$$\begin{aligned} OCEG &= 36 + 21 = 57 \\ [OCFG &= 38 + 12 = 50 \\ OADG &= 33 + 17 = 50] \end{aligned}$$