

Sessió de dubtes BAT_MAT1

Hiurament 2

5/11/2021 @ 18:30 h

MÉTHODE DE GAUSS

$$\begin{array}{lcl}
 (1) & 1x + 2y - z = -1 & \longrightarrow \\
 (2) & 3x + y + 2z = 7 & \longrightarrow [2] \rightarrow [2] - 3[1] \\
 (3) & -2x - y + 5z = 0 & \longrightarrow
 \end{array}$$

$$\begin{cases}
 x + 2y - z = -1 \longrightarrow \\
 -5y - z = 10 \longrightarrow \\
 -2x - y + 5z = 0 \rightarrow [3] \rightarrow [3] + 2[1]
 \end{cases}$$

$$\begin{cases}
 x + 2y - z = -1 \rightarrow \text{aïllant } x \\
 -5y - z = 10 \rightarrow \text{aïllant } z \\
 -12y = 28 \rightarrow y = \frac{-28}{12} = -\frac{7}{3} \\
 z = 10 - 5y = 10 - 5 \cdot \left(-\frac{7}{3}\right) = \frac{65}{3} \\
 x = -1 - 2y + z = -1 + \frac{14}{3} + \frac{65}{3} = \frac{76}{3}
 \end{cases}$$

$$\begin{cases}
 x + 2y + z = 1 \\
 y + 3z = 0 \\
 z = 5
 \end{cases}$$

$$\begin{cases}
 x + 2y - z = -1 \longrightarrow \\
 -5y - z = 10 \longrightarrow \\
 3y + 3z = -2 \rightarrow \\
 [3] \rightarrow [3] + 3 \cdot [2]
 \end{cases}$$

$$\begin{array}{rcl}
 [2] & 3x + y + 2z = 7 & \\
 -3[1] & -3x - 6y - 3z = 3 & \\
 \hline
 & -5y - z = 10 &
 \end{array}$$

$$\begin{array}{rcl}
 [3] & -2x - y + 5z = 0 & \\
 2[1] & 2x + 4y - 2z = -2 & \\
 \hline
 & 3y + 3z = -2 &
 \end{array}$$

COM PLANTEJAR SISTEMA

Identificar les incògnites

$$\begin{cases} x: \text{edat mare} \\ y: \text{edat pare} \\ z: \text{edat fill.} \end{cases}$$

..... \rightarrow 'Equació'

$$\begin{cases} x + 2y - z = 1 \end{cases}$$

$$\begin{cases} x & -z = 100 \end{cases}$$

$$\begin{cases} 2y + z = 3 \end{cases}$$

\rightarrow Resolució
Gauss.

PLANTEJAR SISTEMA

Ex 26 - (45)

x: Edat mare
y: Edat germana
z: Edat menor

1^a Eq. $x = 2(y + z)$

2^a Eq. $z = \frac{y}{2}$

3^a Eq. $x + y + z = 45$

$$x = 2y + 2z$$

$$x - 2y - 2z = 0$$

$$2z = y$$

$$-y + 2z = 0$$

$$\begin{cases} x - 2y - 2z = 0 \\ -y + 2z = 0 \\ x + y + z = 45 \end{cases} \rightarrow [3] \rightarrow [3^a] - [1^a]$$

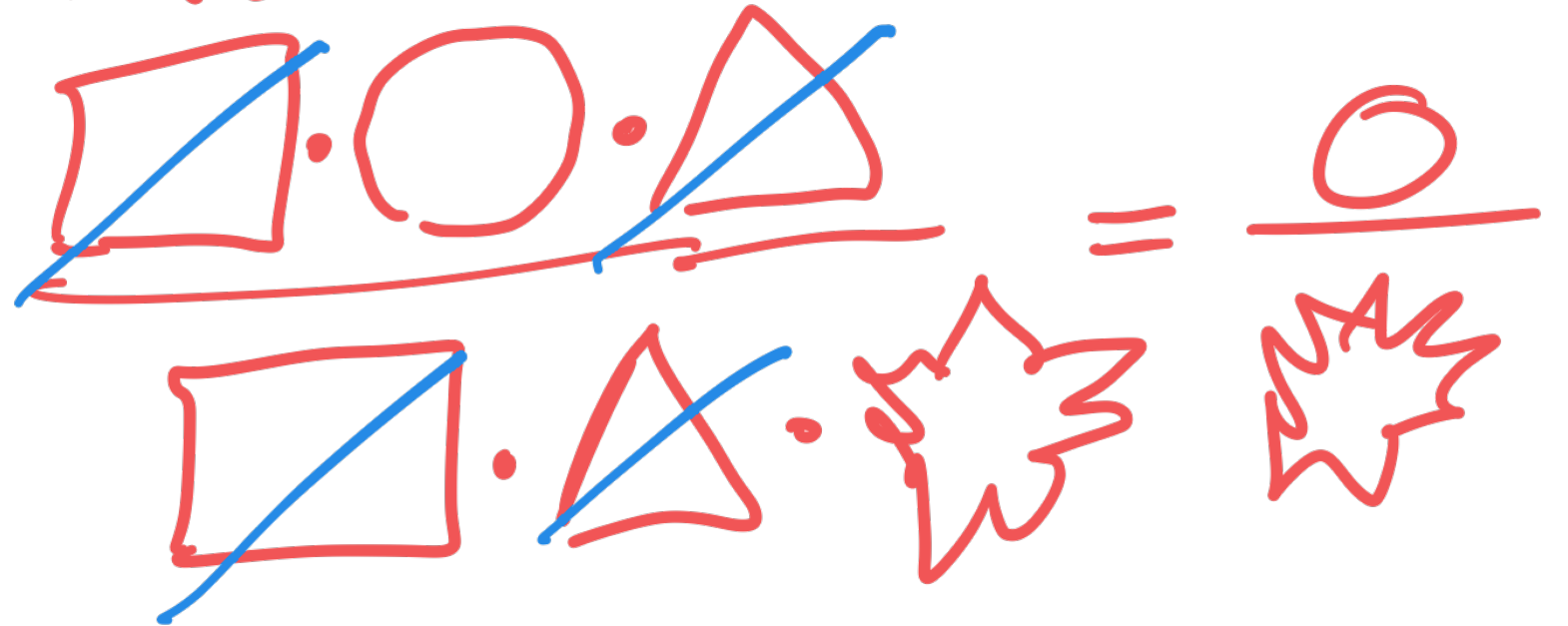
$$\begin{cases} x - 2y - 2z = 0 \\ -y + 2z = 0 \\ 3y + 3z = 45 \end{cases}$$

$$[3^a] \rightarrow [3^a] + 3[2^a]$$

$$\begin{cases} x - 2y - 2z = 0 \rightarrow x = 2y + 2z = 20 + 10 = 30 \\ -y + 2z = 0 \rightarrow y = 2z = 10 \\ 9z = 45 \rightarrow z = \frac{45}{9} = 5 \end{cases}$$

FRACCIONS ALGEBRAIQUES

$$\frac{x^2 - 4}{x^2 - 4x + 4}$$



$$\frac{x^2 - 2^2}{x^2 - 4x + 4} = \frac{(x+2) \cdot \cancel{(x-2)}}{\cancel{(x-2)} \cdot (x-2)} = \frac{x+2}{x-2}$$

$$a^2 - b^2 = (a+b) \cdot (a-b)$$

$$(a-b)^2 = a^2 - 2ab + b^2$$

$$\frac{1}{\cancel{-x}} + \frac{x-2}{\cancel{2x^2}} + \frac{7}{\cancel{-x^3}} = \frac{2x^2 + x \cdot (x-2) + 14}{2x^3} =$$

$$\text{mcm} = 2x^3$$

$$2 \cdot x^3$$

$$= \frac{2x^2 + x^2 - 2x + 14}{2x^3} = \boxed{\frac{3x^2 - 2x + 14}{2x^3}}$$

EQUACIONS LOGARÍTMIQUES I EXPONENCIALS

Exp:

$$\underline{2^x = 5} \xrightarrow{\text{def.}} x = \log_2 5 \approx 2, \dots$$

log:

$$\log_7 x = 3 \rightarrow \boxed{7^3 = x}$$

$$\log x - \log x^2 = 1$$

$$\log A - \log B = \log \frac{A}{B}$$

$$\log_{10} \left[\frac{x}{x^2} \right] = 1 \rightarrow 10^1 = \frac{x}{x^2}$$

$$10x^2 = x$$

$$\boxed{10x^2 - x = 0}$$

$$x = 0$$

$$x = \frac{1}{10}$$

$$\log_b \text{ (house) } = \text{ (house) } \\ \text{ (house) } = b^{\text{ (house) }}$$