

Problema

Una empresa de viatges fa 4 tipus de Tours, el Tour A costa 125€, el Tour B costa 315€, el Tour C costa 405€, el Tour D costa 375€.

El nombre de clients en un període de 4 mesos ve donat per la següent taula:

	TOUR A	TOUR B	TOUR C	TOUR D
NOVEMBRE	50	42	18	65
DESEMBRE	65	37	25	82
GENER	120	29	23	75
FEBRER	42	36	19	72

Utilitzeu la informació en matrius per calcular:

- a) Els ingressos de cada més.
- b) Els ingressos de cada Tour.
- c) Els ingressos totals.

Solució.

Considerem la matriu de clients per mesos i Tours (files, columnes):

$$A = \begin{pmatrix} 50 & 42 & 18 & 65 \\ 65 & 37 & 25 & 82 \\ 120 & 29 & 23 & 75 \\ 42 & 36 & 19 & 72 \end{pmatrix}$$

Considerem la matriu de preus per Tour: $P = \begin{pmatrix} 125 & 0 & 0 & 0 \\ 0 & 315 & 0 & 0 \\ 0 & 0 & 405 & 0 \\ 0 & 0 & 0 & 375 \end{pmatrix}$

Considerem les matrius $B = \begin{pmatrix} 1 \\ 1 \\ 1 \\ 1 \end{pmatrix}$ $C = (1 \ 1 \ 1 \ 1)$.

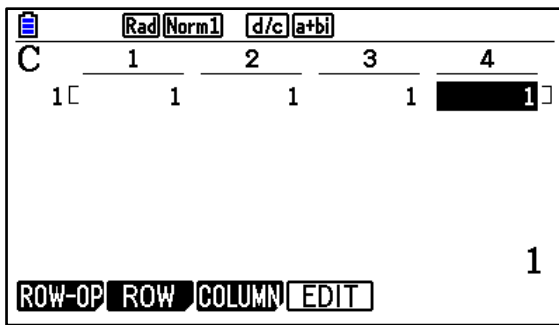
Obrim el *Menú Ejec-Mat*

Definim les quatre matrius.

The screenshot shows the 'Ejec-Mat' menu with a dialog box for defining matrix A. The dialog box is titled 'Dimensión m×n' and has fields for 'm' and 'n', both set to 4. Below the dialog, the matrix A is displayed in a grid format with 4 rows and 4 columns. The values are: Row 1: 50, 42, 18, 65; Row 2: 65, 37, 25, 82; Row 3: 120, 29, 23, 75; Row 4: 42, 36, 19, 72. The total value 72 is shown at the bottom right of the grid. The menu options include 'Rad', 'Norm1', 'd/c', 'a+bi', 'DELETE', 'DEL-ALL', 'DIM', 'CSV', 'M⇌V', 'ROW-OP', 'ROW', 'COLUMN', and 'EDIT'.

The screenshot shows the 'Ejec-Mat' menu with matrix P defined. The matrix P is displayed in a grid format with 4 rows and 4 columns. The values are: Row 1: 125, 0, 0, 0; Row 2: 0, 315, 0, 0; Row 3: 0, 0, 405, 0; Row 4: 0, 0, 0, 375. The total value 125 is shown at the bottom right of the grid. The menu options include 'Rad', 'Norm1', 'd/c', 'a+bi', 'ROW-OP', 'ROW', 'COLUMN', and 'EDIT'.

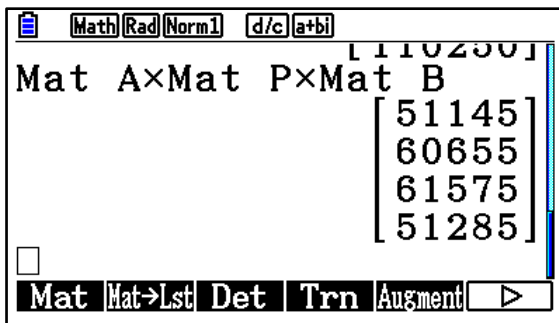
The screenshot shows the 'Ejec-Mat' menu with matrix B defined. The matrix B is displayed in a grid format with 4 rows and 1 column. The values are: Row 1: 1; Row 2: 1; Row 3: 1; Row 4: 1. The total value 1 is shown at the bottom right of the grid. The menu options include 'Rad', 'Norm1', 'd/c', 'a+bi', 'ROW-OP', 'ROW', 'COLUMN', and 'EDIT'.



a)

Els ingressos de cada mes són:

$$A \cdot P \cdot B$$



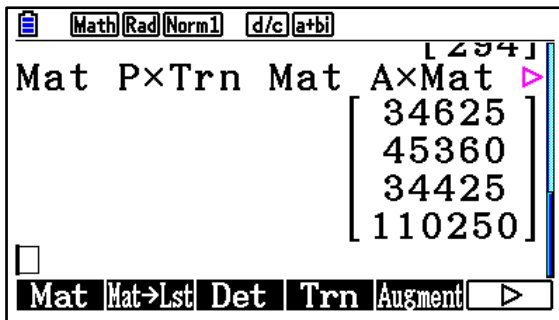
€

NOVEMBRE	51145 €
DESEMBRE	60655 €
GENER	61575 €
FEBRER	51285 €

b)

Els ingressos per cada Tour són:

$$P \cdot A^t \cdot B$$



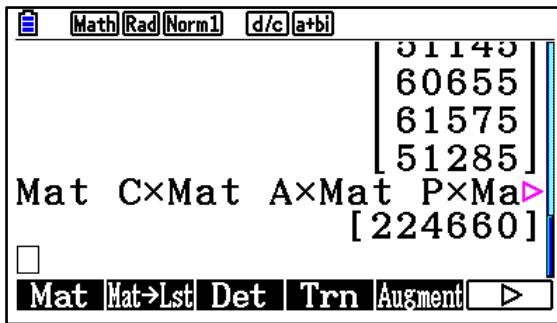
€

TOUR A	34625 €
TOUR B	45360 €
TOUR C	34425 €
TOUR D	110250 €

c)

Els ingressos totals són:

$$C \cdot A \cdot P \cdot B$$



A screenshot of a scientific calculator interface. The display shows a 4x1 column matrix with values 51145, 60655, 61575, and 51285. Below the matrix, the text "Mat C×Mat A×Mat P×Ma" is displayed with a pink arrow pointing to the right. Underneath, the result "[224660]" is shown. The calculator's mode menu at the top includes "Math", "Rad", "Norm1", "d/c", and "a+bi". The bottom menu includes "Mat", "Mat→Lst", "Det", "Trn", "Augment", and a right arrow.

Ingressos Totals: 224660 €.