Matrix organisation and order

6 questions | 12 marks

Equivalent correct methods earn the corresponding marks.

1. State the order of $A = \begin{pmatrix} 1 & 4 \\ 2 & 5 \\ 3 & 6 \end{pmatrix}$. [2 marks]

Count 3 rows.

Each contains 2 entries.

Answer: 3×2.

2. Find a_{12} and a_{31} in $A = \begin{pmatrix} 1 & 4 \\ 2 & 5 \\ 3 & 6 \end{pmatrix}$. [2 marks]

Row 1 column 2 is 4.

Row 3 column 1 is 3.

Answer: $a_{12} = 4$, $a_{31} = 3$.

3. Rows are Monday/Tuesday and columns adult/child tickets. Interpret 31 in $\begin{pmatrix} 24 & 10 \\ 31 & 8 \end{pmatrix}$. [2 marks]

31 is in row 2, column 1.

Read the matching labels.

Answer: 31 adult tickets were sold on Tuesday.

4. How many entries are in a 4×3 matrix? [2 marks]

Four rows have three entries each.

$4(3) = 12$.

Answer: 12.

5. Can lists $(2, 5)$ and $(1, 4, 7)$ form the two rows of one matrix? [2 marks]

Their lengths differ.

A matrix must be rectangular.

Answer: No.

6. A profit matrix includes -40. Must it be invalid? [2 marks]

Matrix entries may be negative.

Its context determines whether that makes sense.

Answer: No; it could represent a 40 dollars loss.