Matrix notation, order and entries

6 questions | 12 marks

Equivalent correct methods earn the corresponding marks.

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

Count one row and four columns.

Answer: 1×4.

2. For $A = \begin{pmatrix} 2 & 5 \\ -1 & 8 \end{pmatrix}$, find a_{21} and a_{12}. [2 marks]

Locate row 2 column 1.

Then locate row 1 column 2.

Answer: $a_{21} = -1$, $a_{12} = 5$.

3. How many entries does a 4×3 matrix contain? [2 marks]

Multiply the number of rows by the number of columns: $4 \times 3 = 12$.

Answer: 12 entries.

4. Find x if $\begin{pmatrix} 1 & x-2 \end{pmatrix} = \begin{pmatrix} 1 & 6 \end{pmatrix}$. [2 marks]

Equality gives $x - 2 = 6$.

Add 2 to both sides.

Answer: $x = 8$.

5. Two shops record sales of three products. Rows represent shops and columns represent products. State the order of the sales matrix. [2 marks]

There are two shop rows and three product columns.

Answer: 2×3.

6. Are $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ and $\begin{pmatrix} 1 & 3 \\ 2 & 4 \end{pmatrix}$ equal? Explain. [2 marks]

Their orders agree, but their top-right entries are 2 and 3.

Matrix equality requires every corresponding entry to agree.

Answer: No.