

# Matrix\_Problems\_3

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## Determinant of a Matrix

1. Calculate  $|A|$

$$A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$$

2. Calculate  $|B|$ . Use Sarrus rule.

$$B = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$$

3. Calculate  $|C|$ . Use Laplace method.

$$C = \begin{bmatrix} 4 & 0 & -1 \\ 3 & 3 & 1 \\ 3 & -1 & 2 \end{bmatrix}$$

4. Calculate  $|D|$ . Why, in this case, can we calculate the determinant “easily”?

$$D = \begin{bmatrix} 1 & 2 & 3 & 4 \\ 0 & 6 & 7 & 8 \\ 0 & 0 & 5 & -2 \\ 0 & 0 & 0 & 2 \end{bmatrix}$$

### *Solutions*

- 1.

$$A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} =$$

- 2.

$$B = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} =$$

- 3.

$$C = \begin{bmatrix} 4 & 0 & -1 \\ 3 & 3 & 1 \\ 3 & -1 & 2 \end{bmatrix} =$$

- 4.

$$D = \begin{bmatrix} 1 & 2 & 3 & 4 \\ 0 & 6 & 7 & 8 \\ 0 & 0 & 5 & -2 \\ 0 & 0 & 0 & 2 \end{bmatrix} =$$