

# 1 Symmetric Matrices

Which of the following three matrices is symmetric?

1.  $A = \begin{pmatrix} 0 & 0 & 1 & 2 \\ 0 & 0 & 3 & 4 \\ 1 & 2 & 0 & 0 \\ 3 & 4 & 0 & 0 \end{pmatrix}$

2.  $B = \begin{pmatrix} 1 & 2 & 0 & 0 \\ 3 & 4 & 0 & 0 \\ 0 & 0 & 4 & 2 \\ 0 & 0 & 3 & 1 \end{pmatrix}$

3.  $C = \begin{pmatrix} 0 & 0 & 1 & 2 \\ 0 & 0 & 3 & 4 \\ 1 & 3 & 0 & 0 \\ 2 & 4 & 0 & 0 \end{pmatrix}$

**Solution:**

1.  $A$  is not symmetric.

2.  $B$  is not symmetric.

3.  $C$  is symmetric.