$\det(A) = -2$, $\det(B) = 4$, $\det(C) = 3$

① $\det(A^2 B^T) =$ 16

$\det(A^2)\det(B^T) =$

$[\det(A)]^2 [\det(B)] =$

$(-2)^2 \times 4 =$

$4 \times 4 = 16$

- $\det(A^k) = [\det(A)]^k$
- $\det(B^T) = \det(B)$

② $\det(A^2 + B^2) =$ N/A

There is no general formula expressing $\det(X+Y)$ in terms of $\det(X)$ and $\det(Y)$ alone. Without additional information about the relationship between A and B, $\det(A^2+B^2)$ can not be determined from determinants alone.

③ $\det(CB^{-1}) =$ $\frac{3}{4}$

$\det(C)\det(B^{-1}) =$

$\det(C)[\det(B)]^{-1} =$

$3 \times \frac{1}{4} = \frac{3}{4}$

- $\det(B^{-1}) = \frac{1}{\det(B)}$