Question 1. Given A and B are 3×3 matrices, $\det(A) = 4$ and $\det(B) = -3$. Find

a. *(4 marks)* $\det\left(-A^T (2B)^{-3}\right)$

b. *(4 marks)* $\det\left(5BA^{-1} - 2B\operatorname{adj}(A)\right)$

Question 2. Given the linear system $\begin{cases} -2x_1 + 3x_2 + 2x_3 = 1 \\ x_1 - x_2 + 4x_3 = 2 \\ -3x_1 + 2x_2 + x_3 = 5 \end{cases}$

a. *(3 marks)* Find the first column of the adjoint of the coefficient matrix of the above system.

b. *(4 marks)* Find x_2 of the above system only by using Cramer's Rule.