In vrae 1 en 2 is A, B, C, en X is $(n \times n)$ matrikse, en I is die $(n \times n)$-eenheidsmatriks. Neem aan dat waar ookal 'n inverse van 'n matriks benodig word, dit wel bestaan.

In questions 1 and 2, A, B, C, and X are $(n \times n)$ matrices, and I is the $(n \times n)$ identity matrix. Assume that the inverse of a matrix exists, whenever it is needed.

1 Vereenvoudig die volgende uitdrukkings:

Simplify the following expressions:

(a) $(B^T(A^T + I))^T - B$

(b) $(B(CAB + CB)^{-1}C)^{-1}$

$\dfrac{10}{10}$

(a) $\left[B^T(A^T + I) \right]^T - B = (A^T + I)^T (B^T)^T - B$

$= (A + I)B - B = AB + B - B$

$= AB$

(b) $\left[B(CAB + CB)^{-1}C \right]^{-1} = C^{-1}(CAB + CB)B^{-1}$

$= C^{-1}CABB^{-1} + C^{-1}CBB^{-1} = A + I$

(a) | AB |

(b) | $A + I$ |

2 Maak X die onderwerp van die formule in onderstaande vergelyking:

Make X the subject of the formula in the equation below:

$$(A + I)X = AB + X(I + B^{-1}A) - B^{-1}A$$

I apologize. This was completely unfair and too difficult. I have also not shown you any techniques in tackling this. This will not be graded. I apologize for the time you had to spend working on this.

$X = I + B$