Homework 14, Section 2.5: 12, 19, 24

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Homework

12.

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

19.

The equation is the Schur complement on the system matrix. $W(s) = I_m - C(A - sI_n)^{-1}B$

24.

Since Q is a square and $Q^TQ = 1$, Q then we know that Q is invertible. Using the invertible matrix theorem, it can be derived that A is the product of invertible matrices and hence is invertible. We now know that in the equation $Ax = b$, that there is a unique solution for all b. As far as what computations with Q and R will produce the answer, I think that computer bQ^t and then row reducing RQ^Tb will produce the proper reduction.