Lecture 10 Problems: Problem 1

Expanding,

$$\det\begin{pmatrix} 0 & 0 & 0 & 1 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{pmatrix} = 0(\text{junk}) - 0(\text{junk}) + 0(\text{junk}) - 1\begin{vmatrix} 1 & & \\ & 1 & \\ & & 1 \end{vmatrix} = -1.$$

Expanding / calculating by cofactors is most efficient.

Problem 2

By expanding and noting that

19 (known det 1) + other multiples of cofactors

must be 1 less than 1!

20 (known det 1) + same junk

Thus, since the latter is 1 then 1 - 1 = 0.