Homework set 5 — M341, TuTh 8:00am - 9:15am section, Spring 2020

Hand in solutions to:
Section 3.1: 1(b,d), 10, 14.
Section 3.2: 1(a,e,f), 2(a,d), 13.

Problem 1: Compute the determinants of the following matrices:

$$\mathbf{A} = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 3 & 0 \\ -1 & 0 & 5 \end{bmatrix}$$

$$\mathbf{B} = \begin{bmatrix} 0 & 3 & 0 \\ 1 & 0 & 2 \\ -1 & 0 & 5 \end{bmatrix}$$

$$\mathbf{C} = \begin{bmatrix} 1 & 0 & 0 & -1 \\ 1 & 1 & 0 & -1 \\ 0 & 7 & 3 & 2 \\ 1 & 0 & 2 & 3 \end{bmatrix}$$

$$\mathbf{D} = \begin{bmatrix} 0 & 1 & 0 & 0 & \pi \\ 2 & 0 & 0 & 0 & 1 \\ 0 & 0 & 3 & 0 & 1 \\ 0 & 0 & 0 & 5 & 1 \\ 0 & 0 & -6 & 0 & 1 \end{bmatrix}$$

Use row operations to drive each matrix to upper triangular form, then use the theorem that says that the determinant of a diagonal matrix is the product of its diagonal entries.

Optional problems: You are strongly encouraged to work these! But do not hand in.
Section 3.1: 12, 15, 16.
Section 3.2: 3(a,b), 14, 17.