HW 10 - turn in one week from today in Canvas

Turn in the 5 questions as a single .py file onto canvas. Use comments to clearly indicate which question you are working on. Your filename should end as _py2.py if you use Python2 and _py3.py if you use Python3.

1. Differentiate
$$w(x, y) = 3.0x^2y + 2y + y \sin x \tag{1}$$
with respect to x. Use SymPy to symbolically represent x and y. Print the result.
2. Solve
$$\int_{-3.25}^{7.32} \left(3.3x^6 + 1.7x^4 - 7.3x^3 + 6.7x\right) dx \tag{2}$$
using SymPy to perform the integration. Print the result.
3. Solve the following following equation
$$0 = 5.0x^8 + 3.0x^3 + 3.0x^2 - 2.5x + 1.1 \tag{3}$$
using SymPy and print the result.

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4. Take the determinant of

$$\begin{bmatrix} m^2 & 2.0m & 1.0 & 2.3 \\ m & 2.3 & -5.0 & 2.1 \\ 2.1 & 73.0 & -56.0 & 1.1 \\ -12.0 & -1.0 & 13.0 & m \end{bmatrix} \tag{4}$$

   using SymPy and print the result.

5. Generate 10 samples for a two dimensional design using a center criterion latin-hypercube. Plot the samples using matplotlib.