P1.

Write a m-code to create an output matrix Y which consists of only even numbers (in order) from the given input X.

For example,

Input   X = [1, 2, …,10]

Output   Y = [2, 4,…,10]

P2.

Given an integer n, write a m code to compute the following:

$$S = 1 + \frac{1}{2} + \cdots + \frac{1}{n}$$

P3.

Plot $f(t) = \frac{3}{2}\sin^2(t) + 3\cos^2(t) + 1$ for $0 \le t \le 3$, and find t that minimizes $f(t)$.

P4.

Read data from Excel (PB4.xls) and write new values which are multiplied by 2 to the adjacent cells in the same Excel file.

1	2
2	4
3	6
4	8

P5.

Plot $f(x) = \sin x \cdot e^x + \log_{10}(3x) + \dfrac{1}{\sqrt{2x+7}}$ for $0 \le x \le \pi$, and find x that maximizes $f(x)$.

P6.

$$M = \begin{bmatrix} 1 & 4 & -3 \\ 4 & 2 & 0 \\ -3 & 0 & 3 \end{bmatrix}, \text{ calculate } (M^T M)^{-1} M^2$$