

Quiz (I)

1. (a) Generate the given matrix:
$$\begin{bmatrix} 1 & 2 & 5 & -1 \\ 2 & 3 & 6 & 8 \\ -1 & -2 & -4 & -5 \\ 0 & 2 & 5 & 8 \end{bmatrix}$$
 - (b) Print out the element at the 2nd row
Output format: "The elements of the second row are 2, 3, 6, and 8"
 - (c) Display the elements at the 3rd column of the given matrix.
Output format: "The elements of the third column are 5, 6, -4 and 5"
2. Generate a 3x4x5 3D array, and let each element of the array equals to the sum of the array index. e.g. $A(1,1,1)=3$, $A(3,4,5)=12$.
3. Declare the two matrices of given type: $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$ of 16-bit integers and $B = \begin{bmatrix} 1.1 & 2.2 & 3.3 \\ 4.4 & 5.5 & 6.6 \\ 7.7 & 8.8 & 9.9 \end{bmatrix}$ of double precision floating point. Then use a for loop to perform summation of two matrices and store the result in a matrix C. Do you get a correct answer? If no, what will you do to obtain the correct answer?
4. Draw a line to connect the two points: (-2,5) and (3,1)
5. Plot the three given equations on a figure. (1) $y = 2x + 10$ (2) $y = 3x - 10$ (3) $y = 0.5x^2 - 2$. Let the (1) be a solid red line, the (2) be a dashed blue line and the (3) be a black dotted line. And set the plot range of x-axis to be $[-10, 10]$
6. Plot a sinusoidal function: $y = \sin(2\pi t)$ and set the plot range of x to be within $[-3, 3]$. Give the plot a title and let the label of the x-axis be "Time (second)", and the y axis be "Amplitude (cm)".
7. Draw a unit circle using plot function
8. Write a function that returns two outputs: the first output is the sum and the second one is the difference of the two input variables. The input variables can be two numbers, two vectors of equal length, or two arrays of equal size.