DEPARTMENT OF MATHEMATICS
SCHOOL OF ADVANCED SCIENCES
Lab Assessment - I
Fall Semester 2020 - 21

Course Code : MAT2001 **Course Name : Statistics for Engineers**

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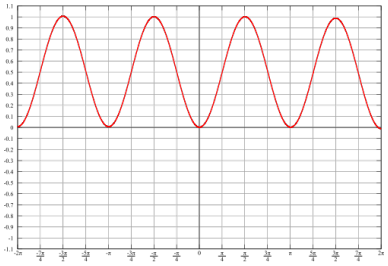
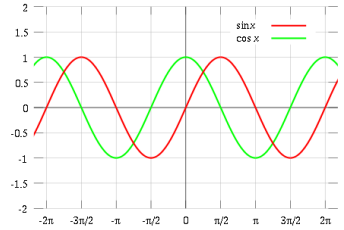
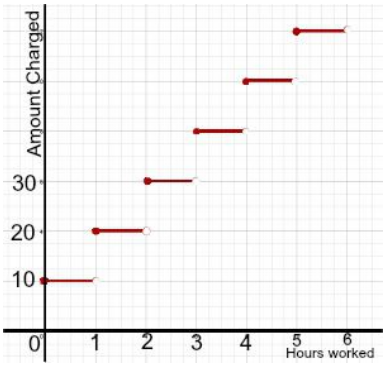
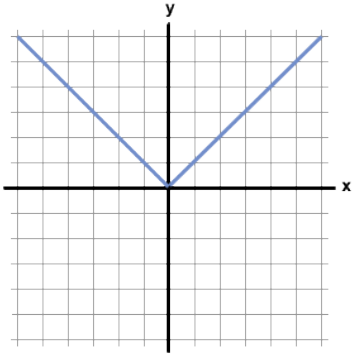
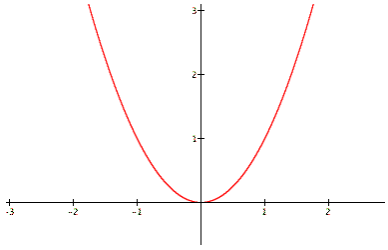
1. Write a R code to print the following graphs:











2. Write R code to print a Fibonacci sequence using any of the loop statements.

3. If

$$A = \begin{bmatrix} 1 & 2 & -8 & 14 & 7 \\ 13 & 24 & 17 & 5 & 9 \\ 7 & 32 & 10 & 14 & 5 \\ 3 & 4 & 53 & 34 & 43 \\ 9 & 11 & 14 & -10 & 4 \end{bmatrix}$$

and

$$B = \begin{bmatrix} -10 & 12 & 11 & 4 & 2 \\ 9 & 21 & 7 & 13 & 8 \\ 17 & 2 & 1 & 17 & -19 \\ 2 & 7 & 5 & 3 & 4 \\ 15 & 1 & 4 & -31 & 14 \end{bmatrix}$$

then write R code to find the following:

(i) the eigenvalue and eigenvector of A and B.

(ii) check whether $(AB)^{-1} = B^{-1}A^{-1}$

(iii) dimension of $4 * A^5 - 5A^3 + A^2$

(iv) replace 4^{th} row of A by (5 -4 6 3 2) and 5^{th} column of B by (14 9 43 24 26).