

---

```
clear all;
close all;
clc;
%2401030116
%nishika
%B12
a=6;
b=3;
disp("a=" +a);
disp("b=" +b);
%addition
c=a+b;
disp("addition=" +c);
%subtraction
d=a-b;
disp("subtraction=" +d);

%multiplication
e=a*b;
disp("multiplication :" +e);

%division
f=a/b;
disp("division :" +e);
%power
g = a^b;
disp("power :" +g);
% Modulus
h = mod(a, b);
disp("modulus :" +h);

%working on matrix
mat1=[1 2 3;4 5 6;7 8 9];
mat2=[1 0 0;0 1 0;0 0 1];
%matrix addition
matSum=mat1+mat2;
disp("Matrix Addition: ");
disp(matSum);
%matrix multiplication
matProd = mat1 * mat2;
disp("Matrix Multiplication: ");
disp(matProd);

%sinoidal wave
A=5;
f=2;
t=0:0.01:1;%time vector
phi=0;
sinWave=A*sin(2*pi*f*t+phi);
figure;
```

---

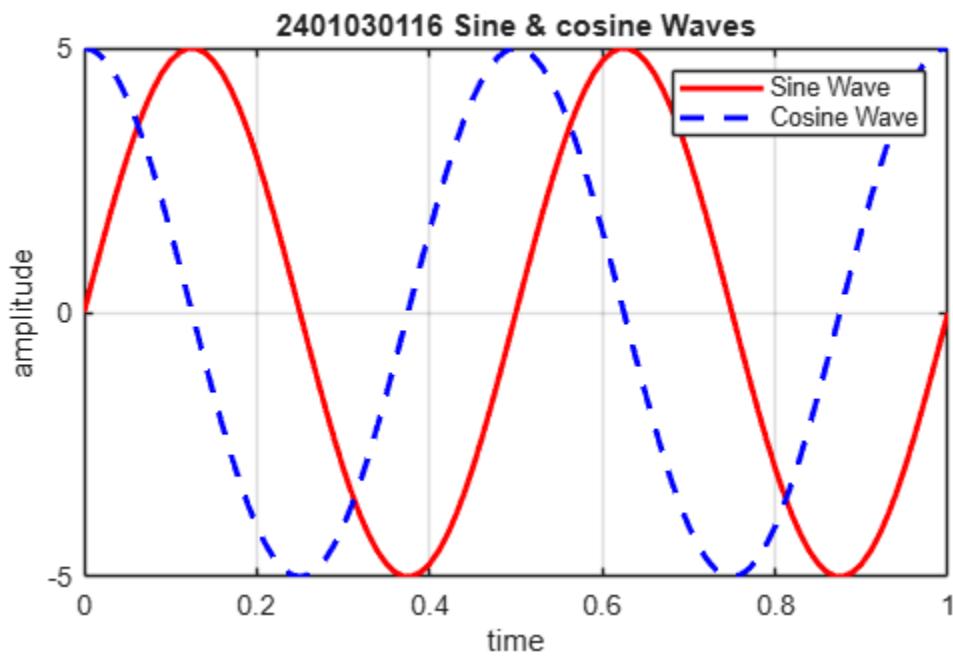
---

```
plot(t,sinWave,'r','LineWidth',2);
title('2401030116sinewave');
xlabel('time');
ylabel('amplitude');

% Generate a cosine wave for comparison
cosWave = A*cos(2*pi*f*t + phi);
sinWave =A*sin(2*pi*f*t + phi);
hold on;
plot(t, cosWave,'b--','LineWidth',2);
title('2401030116 Sine & cosine Waves');
legend('Sine Wave', 'Cosine Wave');
hold off;
grid on;

a=6
b=3
addition=9
subtraction=3
multiplication :18
division :18
power :216
modulus :0
Matrix Addition:
    2      2      3
    4      6      6
    7      8     10

Matrix Multiplication:
    1      2      3
    4      5      6
    7      8      9
```



*Published with MATLAB® R2025b*