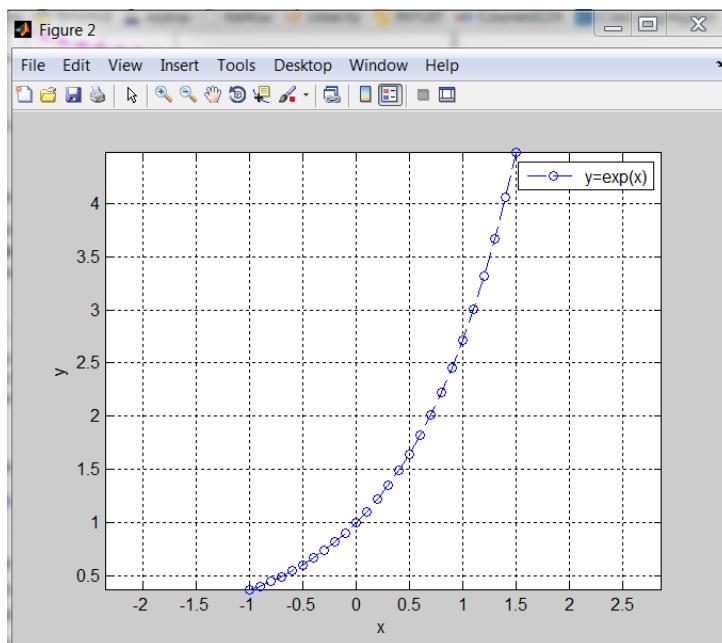
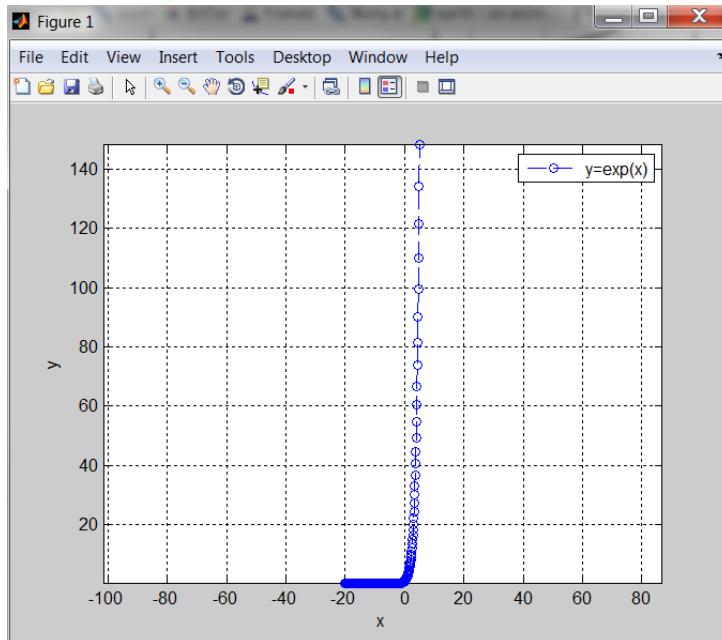


Answer on Question #50276 – Engineering

Please explain the graph for $f=e^x$?

Answer:



The graph of $y = e^x$ is upward-sloping, and increases faster as x increases. The graph always lies above the x -axis but can get arbitrarily close to it for negative x ; thus, the x -axis is a horizontal **asymptote**. The **slope** of the tangent to the graph at each point is equal to its y coordinate at that point

Graphs of Exponential Functions

- The graph passes through the point $(0,1)$
- The domain is all real numbers
- The range is $y>0$.
- The graph is increasing
- The graph is asymptotic to the x -axis as x approaches negative infinity

- The graph increases without bound as x approaches positive infinity
- The graph is continuous
- The graph is smooth

MATLAB CODE:

```
clc,close all,clear all
figure
x=-20:0.1:5
y=exp(x)
xlim([-10 10]),ylim([0 100])
plot(x,y,'o-')
axis equal,grid on
xlabel('x'),ylabel('y')
legend('y=exp(x)')

figure
x=-1:0.1:1.5
y=exp(x)
xlim([-1 1.5]),ylim([0 100])
plot(x,y,'o-')
axis equal,grid on
xlabel('x'),ylabel('y')
legend('y=exp(x)')
```