

Worksheet 1

Problem 1:

```
x = 25
```

```
x = 25
```

```
y = 1.4*10^4
```

```
y = 14000
```

```
z = exp(1)^((1i*pi)/4)
```

```
z = 0.7071 + 0.7071i
```

```
w = (sqrt(x)+y^-1/4)^pi
```

```
w = 156.9943
```

```
u = log(z*conj(z))
```

```
u = 0
```

Problem 2:

```
x = linspace(-100,100,201)
```

```
x = 1×201  
-100 -99 -98 -97 -96 -95 -94 -93 -92 -91 -90 -89 -88 ...
```

```
y = logspace(-2,2,5)
```

```
y = 1×5  
0.0100 0.1000 1.0000 10.0000 100.0000
```

```
% Transpose make the vector from rows to columns and vice versa. this is useful  
for aligning the dimensions of vectors and matrices to facilitate operations like  
multiplication.
```

```
i = sqrt(-1)
```

```
i = 0.0000 + 1.0000i
```

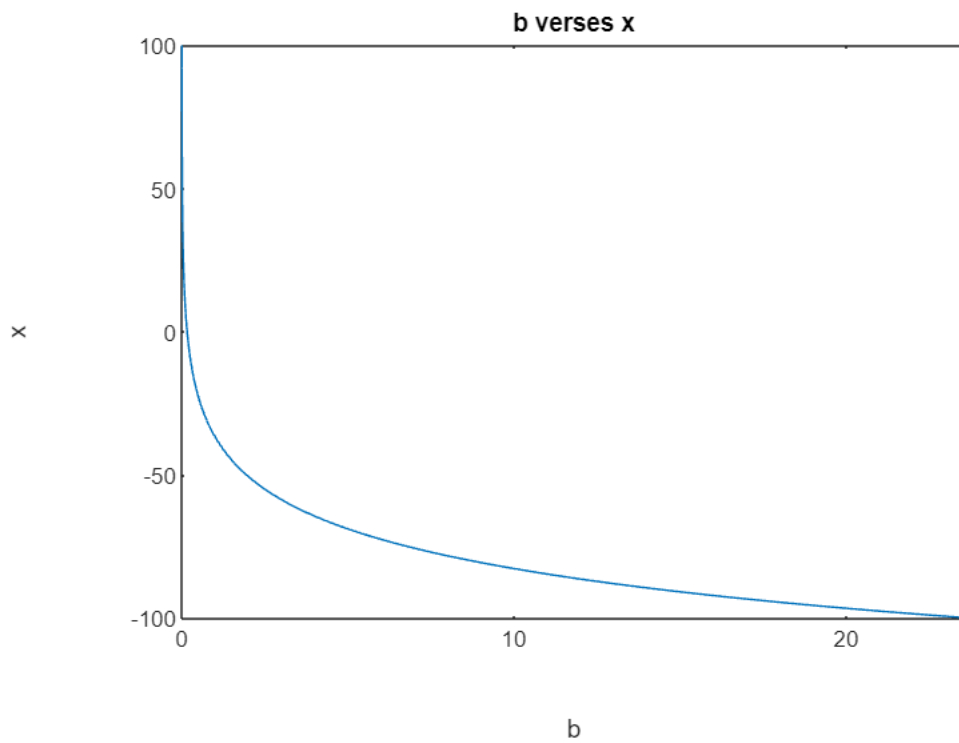
```
z = exp(i*pi*linspace(-1,1,9))
```

```
z = 1×9 complex  
-1.0000 - 0.0000i -0.7071 - 0.7071i 0.0000 - 1.0000i 0.7071 - 0.7071i ...
```

```
b = (1/(2*pi))*exp(-x/20)
```

```
b = 1×201  
23.6207 22.4687 21.3729 20.3305 19.3390 18.3958 17.4986 16.6452 ...
```

```
plot(b,x)  
title("b verses x")  
xlabel("b")  
ylabel('x')
```



Problem 3:

```
A = [1 1 1 1 1; 1 1 1 1 1; 1 1 1 1 1; 1 1 1 1 1; 1 1 1 1 1]
```

A = 5×5

```
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
```

```
v = [1 2 3 4 5 6 7 8 9 10]
```

v = 1×10

```
1 2 3 4 5 6 7 8 9 10
```

```
B = diag(v)
```

B = 10×10

```
1 0 0 0 0 0 0 0 0 0
0 2 0 0 0 0 0 0 0 0
0 0 3 0 0 0 0 0 0 0
0 0 0 4 0 0 0 0 0 0
0 0 0 0 5 0 0 0 0 0
0 0 0 0 0 6 0 0 0 0
0 0 0 0 0 0 7 0 0 0
0 0 0 0 0 0 0 8 0 0
0 0 0 0 0 0 0 0 9 0
0 0 0 0 0 0 0 0 0 10
```

```
C = rand(3)
```

```
C = 3x3
    0.4177    0.7011    0.6981
    0.9831    0.6663    0.6665
    0.3015    0.5391    0.1781
```

```
D = C*.4-2
```

```
D = 3x3
   -1.8329   -1.7196   -1.7208
   -1.6068   -1.7335   -1.7334
   -1.8794   -1.7843   -1.9287
```

```
E = floor(D)
```

```
E = 3x3
    -2    -2    -2
    -2    -2    -2
    -2    -2    -2
```

```
b = rand(3,1)
```

```
b = 3x1
    0.1280
    0.9991
    0.1711
```

```
y = C\b
```

```
y = 3x1
    1.4987
   -0.4264
   -0.2853
```

```
% y is a 3 by 3 matrix
z = C*y
```

```
z = 3x1
    0.1280
    0.9991
    0.1711
zz = 3x3
    0.0535    0.0898    0.0894
    0.9821    0.6657    0.6659
    0.0516    0.0923    0.0305
```

```
% b is the same as z
```