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```
close all
clear all
clc

%Ben Ridenbaugh
%EGR 1101
%HW 8
```

Chapter 9

Problem 3

```
syms x
y=exp(.3*x)-x^2==-4;
solve(y,x)
```

```
Warning: Cannot solve symbolically. Returning a numeric
approximation instead.

ans =

-2.127943993850065554208201351847
```

Problem 5

```
y=(.55*25000*9.81)/(cos(x)+.55*sin(x))==150;
solve(y,x)
```

```
ans =

 -log(- (665892466967596672792894478745631/500720265811179440019865600
 +
 2362844237626955935716722343936l1i/1126620598075153740044697600)^(1/2)/2
 + (4634699209113601/6713033883648 +
 5098169130024961li/134260677672960))*1i
```

```
  -log((665892466967596672792894478745631/5007202658111794400198656000
 +
 2362844237626955935716722343936111i/112662059807515374004469760)^(1/2)/2
 + (4634699209113601/6713033883648 +
 509816913002496111i/134260677672960))*1i
```

Problem 6

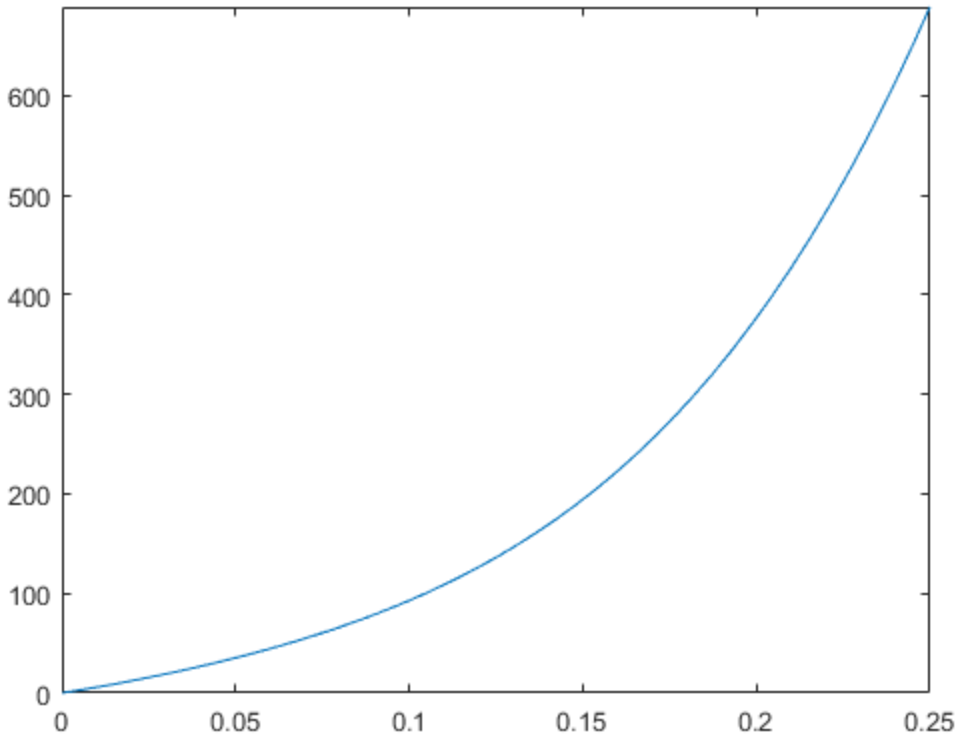
```
figure
fplot('1600*((sqrt(.22^2+(.08+x)^2))-
(sqrt(.22^2+.08^2)))+100000*((sqrt(.22^2+(.08+x)^2))-
(sqrt(.22^2+.08^2)))^3',[0,.25])
solve('1600*((sqrt(.22^2+(.08+x)^2))-
(sqrt(.22^2+.08^2)))+100000*((sqrt(.22^2+(.08+x)^2))-
(sqrt(.22^2+.08^2)))^3==400',x)
```

```
Warning: Char input to fplot will be removed in a future
release. Use
fplot(@(x)1600.*((sqrt(.22.^2+(.08+x).^2))-
(sqrt(.22.^2+.08.^2)))+100000.*((sqrt(.22.^2+(.08+x).^2))-
(sqrt(.22.^2+.08.^2))).^3)
instead.
Warning: Support of character vectors that are not valid
variable names or define a number will be removed in a future
release. To create symbolic expressions, first create symbolic
variables and then use operations on them.
Warning: Do not specify equations and variables as character
vectors. Instead, create symbolic variables with <a
href="matlab:doc('syms')">syms</a>.

ans =


 -0.364749213220208306626202772617 45

 0.204749213220208306626202772617 45
 - 0.196234654315473348689448540700 97 -
 0.245868973395590143326930590849 92i
 - 0.196234654315473348689448540700 97 +
 0.245868973395590143326930590849 92i
  0.036234654315473348689448540700 972 -
 0.245868973395590143326930590849 92i
  0.036234654315473348689448540700 972 +
 0.245868973395590143326930590849 92i
```



Problem 9

```
[xmin,fval]=fminbnd('((3*(x-.25))/(1+3.5*(.8*x-.3)^2))',-1000,1000)
[xmax,fval]=fminbnd('-1*((3*(x-.25))/(1+3.5*(.8*x-.3)^2))',-1000,1000)
```

```
xmin =

   -0.4297


fval =

   -0.8321


xmax =

    0.9297


fval =

   -1.2071
```

Problem 11

```
[thetamin,fval]=fminbnd('(.55*25000*9.81)/(cos(x)+.55*sin(x))',0,150)
```

```
thetamin =

   90.0382


fval =

  -1.4337e+10
```

Problem 14

```
figure
fplot('(2*pi*(3*10^8)^2*(6.63*10^-34))/
(x^5*exp(((6.63*10^-34)*(3*10^8))/(x*(1.38*10^8)*1500))-1',
[.2*10^-6,6*10^-6])
% I do not know what the error is here
```

```
Error using fplot>str2fn (line 306)
Error: This statement is incomplete.

Error in fplot (line 97)
        fn{1} = str2fn(fn{1});

Error in HW8 (line 32)
fplot('(2*pi*(3*10^8)^2*(6.63*10^-34))/
(x^5*exp(((6.63*10^-34)*(3*10^8))/(x*(1.38*10^8)*1500))-1',
[.2*10^-6,6*10^-6])
```

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