CIS HW3 Prob6

MATLAB code used in our solution for problem 6 of CIS HW 3

Contents

Symbol Initialization

```
syms d D v n e dnew nnew
```

B) Solve an equation for d

```
dnew=solve(e==n*d*(D+2*d)+v,d)
```

```
dnew =

 -(D*n + (n*(n*D^2 + 8*e - 8*v))^(1/2))/(4*n)
 -(D*n - (n*(n*D^2 + 8*e - 8*v))^(1/2))/(4*n)
```

C) Find range values of d

```
dnew_sol=subs(dnew,[D,v,n,e],[100,0.25,0.5*10^(-4),2]);
dnew_sol=double(dnew_sol)
```

```
dnew_sol =

 -159.6291
  109.6291
```

D) Find latgest value for n

```
nnew=solve(e==n*d*(D+2*d)+v,n);
% Assume smallest reasonable value for d = 50 mm to maximize n
nnew_sol=subs(nnew,[D,v,e,d],[100,0.25,2,50]);
nnew_sol=double(nnew_sol)
```

```
nnew_sol =

   1.7500e-04
```

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