

SOLUTION: Problem 4N1
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```
%-----
% 1D mesh generator
%-----

clear

%-----
% Enter data
%-----

disp(' ')
disp(' Enter left hand coordinate of domain')
disp(' -----')
XL = input(' < ');

disp(' ')
disp(' Enter right hand coordinate of domain')
disp(' -----')
XR = input(' < ');

L = XR-XL;

disp(' ')
disp(' Enter number of elements')
disp(' -----')
NUMEL = input(' < ');

NUMNP = NUMEL+1;
DX     = L/NUMEL;

%-----
% Create NODES data file
%-----

MESH(1,1) = NUMNP;
MESH(1,2) = 0;
MESH(1,3) = 0;
MESH(1,4) = 0;

NPBC = 0;
U     = 0;
Fi    = 0;
```

```
for i=1:NUMNP
    X = XL+(i-1)*DX;
    MESH(i+1,1) = X;
    MESH(i+1,2) = NPBC;
    MESH(i+1,3) = U;
    NODE(i+1,4) = Fi;
end

save MESH MESH -ASCII
```