

MATLAB EXERCISE 1.3 3-D vector plot. Use MATLAB to write a function `vecPlot3D()` that – for an input 3-D vector given by coordinates of its starting and ending points – plots the vector in a 3-D Cartesian coordinate system. Other input parameters are: information whether or not scaling is to be performed, the color of the vector, and, since the function will later be used to plot the electric force on a charge, whether there should be a dot representing the charge “target” at the tail of the force vector. (*vecPlot3D.m on IR*)

SOLUTION:

```
%
% Book: MATLAB-Based Electromagnetics (Pearson Prentice Hall)
% Author: Branislav M. Notaros
% Instructor Resources
% (c) 2011
%
% This MATLAB code or any part of it may be used only for
% educational purposes associated with the book
%
%
% 3-D vector plot

function vecPlot3D(Vi,Vf,scaling,color,origin)
u = Vf(1)- Vi(1);
v = Vf(2)- Vi(2);
w = Vf(3)- Vi(3);
x = Vi(1);
y = Vi(2);
z = Vi(3);
if (origin~=0)
    plot3(x,y,z,'o','MarkerSize',10,'MarkerFaceColor',color);
    hold on;
end;
quiver3(x,y,z,u,v,w,scaling,'LineWidth',2,'Color',color);
whitebg('white');
axis equal;
grid on;
hold off;
```