```
function [d] = perpDist2line (x,y,a,b,c)
%% perpDist2line.m - calculates perpendicular distance from
%                    a point to a line
%
%   Input x and y coordinates of a point & the coefficients of
%        line A (a b c) of the form: aX +bY + c = 0
%
%   Output: distance
%
% Syntax:  [d] = perp2line (x1,y1,a,b,c)
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Other m-files required:
%
% Subfunctions:
%
% MAT-files required: none
%
% See also: Survey Theory & Practice, 7th ed. J.Anderson, E.Mikhail
%  pp. 1071, A20
% ***************************************************************
% Author: Peter J Dailey, Carlos Ramierz
% 140 Sunset Drive Charleston WV 25301
% email: daileypj@mac.com
% Website: http://
% Last revision: 3-June-2009
% ***************************************************************************
%
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% ***************************************************************************
%
if nargin<5
  error('Too few input arguments');
elseif nargin>5
  error('Too many input arguments');
end
% d = abs[(aX + bY +c)/srt(a^2 + b^2)]
d = abs(((a*x) + (b*y) + c)/sqrt((a^2) + (b^2)));
end

```