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% ### EXplotTANH.m ###          09.09.16

% Code to plot a hyperbolic tangent [y= tanh(a*x)] via two ways:
% o 1. explicit definition (e.g., see
% http://mathworld.wolfram.com/HyperbolicTangent.html)
% o 2. via Matlab's built-in tanh function (e.g., type "help tanh")

clear
% -----
a= 1.5;    % const. appearing in function
xSpan= [-5 5]; % domain
pts= 50;   % # of points to compute function at
% -----

x= linspace(xSpan(1),xSpan(2),pts);    % determine the domain
y1= (exp(2*a*x)-1)./(exp(2*a*x)+1);
y2= tanh(a*x);

figure(1); clf;
h1= plot(x,y1,'b-'); hold on; grid on;
h2= plot(x,y2,'rx');
xlabel('x'); ylabel('y');
legend([h1 h2],'Explicit definition','Matlabs built-in
function','Location','NorthWest');
title('Plotting Hyperbolic tangent');

```