

```
function y = p1(x)

%FUNCTION FILE

%para consists of the a1, a2 and a3 values for water (row1) and
%1,4 dioxane (row2)
para = [8.07131, 1730.63, 233.426; 7.43155, 1554.679, 240.337];

%define the temperature (deg celsius)
T = 20;

%evaluate the saturation pressures for water and 1,4 dioxane
for i=1:1:2
    psat(i) = 10^(para(i,1) - para(i,2)/(T + para(i,3)));
end

%data
xdata = [0.0:0.1:1];
ydata = [28.1, 34.4, 36.7, 36.9, 36.8, 36.7, 36.5, 35.4, 32.9, ...
        27.7, 17.5];

y = 0;

%function
for i = 1:1:length(xdata)
    x1 = xdata(i);
    x2 = 1 - x1;
    yval = ydata(i);

    y = y + (x1 * exp(x(1)*(x(2)*x2/(x(1)*x1 + ...
        x(2)*x2))^2) * psat(1) + x2 * exp(x(2)* ...
        (x(1)*x1/(x(1)*x1 + x(2)*x2))^2) * psat(2) - yval)^2;
end
```