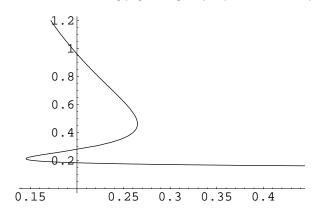
vanderwaals.nb 1

```
In[1]:= (* Van der Waals model *)
        (* ----- *)
        a = 0.1;
        b = 0.1;
        n = 1;
In[4]:= (* equation of state *)
        (* ----- *)
        p[t_{v}] := n*t/(v-n*b) - a*n^2/v^2
In[5] := Plot[\{p[0.325, x], p[0.3, x], p[0.275, x], p[0.25, x]\}, \{x, 0.1, 0.5\}, PlotRange \rightarrow \{0, 1\}]
          1
        0.8
        0.6
        0.4
        0.2
                   0.2
                             0.3
                                       0.4
                                                 0.5
Out[5]= - Graphics -
In[6]:= (* Gibbs Free Energy *)
        (* ----- *)
        g[t_{v}, v_{v}] := -n * t * Log[v - n * b] + n^2 * t * b / (v - n * b) - 2 * a * n^2 / v
In[7] := tt = 0.9 * 0.295;
        ParametricPlot[{p[tt, x], g[tt, x]}, {x, 0.13, 1.2}]
          -0.04
          -0.06
          -0.08
       0.15
                     0.25
                             0.3
                                    0.35
         <del>__0.1</del>2
          -0.14
Out[8]= - Graphics -
```

vanderwaals.nb 2

In[9]:= ParametricPlot[{p[tt, x], x}, {x, 0.13, 1.2}]



Out[9]= - Graphics -