The slope of an isotherm in an av - diagram (v on the horizontal axis) is:

Tip: $da = -sdT - Pdv$

The slope of an isotherm in the av-diagram (v on the horizontal axis) is given by: $\left(\frac{\partial a}{\partial v}\right)_T$

$\frac{\partial a}{\partial v}$ is the slope of diagram with v on the horizontal axis and a on the vertical axis). For an isotherm the temperature T is constant therefore the T at the lower right of the brackets. Don't forget this. From $da = -sdT - Pdv$ it follows that $\left(\frac{\partial a}{\partial v}\right)_T = -P$. So the slope is - P. This is a decreasing line.