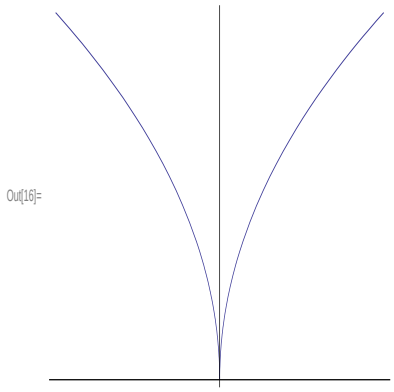

Vertical Tangents Finally, a function is not differentiable at a point on the graph where the tangent line to f is a vertical line. This is because the slope of the tangent to the graph at this point is infinite, which is also in your book corresponds to does not exist.

Example The following function displays all 3 failures of differentiability a corner (at x=-1), discontinuity (at x=0) and a vertical tangent (at x=1). ("m=0" is the slope of the tangent lines when $x < 2$, "m=-1" is the slope of the tangent lines when $-2 < x < -1$ etc. except $m = +\infty$ is the slope of the tangent line at x=1(when approaching from right.))