CQ #2: Let $H(x, y)$ be the elevation at the point in the topographical map shown below with coordinates $(x, y)$. Here $x$ is measured horizontally and $y$ is measured vertically. Let $(x_0, y_0)$ be the point to the right of the red “16” where two brown lines intersect.

What are the signs of the partial derivatives at that point?

a) $\frac{\partial H}{\partial x}(x_0, y_0) < 0$ and $\frac{\partial H}{\partial y}(x_0, y_0) < 0$.

b) $\frac{\partial H}{\partial x}(x_0, y_0) < 0$ and $\frac{\partial H}{\partial y}(x_0, y_0) > 0$.

c) $\frac{\partial H}{\partial x}(x_0, y_0) > 0$ and $\frac{\partial H}{\partial y}(x_0, y_0) < 0$.

d) $\frac{\partial H}{\partial x}(x_0, y_0) > 0$ and $\frac{\partial H}{\partial y}(x_0, y_0) > 0$. 