Suppose that $x = s\cos\phi$ and $y = s\sin\phi$.

1. Let $h(x, y) = xy$. Determine $\frac{\partial h}{\partial s}$ (with $\phi$ held constant) and $\frac{\partial h}{\partial \phi}$ (with $s$ held constant).
2. Find at least one more way to compute these derivatives.
   *Make sure you get the same answer!*
3. Determine $\frac{\partial s}{\partial x}$ and $\frac{\partial \phi}{\partial x}$ (with $y$ held constant).
4. Find at least one more way to compute these derivatives.
   *Make sure you get the same answer!*

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