A configuration of the double pendulum is defined by two angles $x$ and $y$. The potential energy of a configuration is

$$f(x, y) = -\cos(x) - \cos(y).$$

At the critical points of this function, the pendulum is at rest. Find them and classify whether they are minima, maxima or saddle points.

\[
\begin{array}{|c|c|c|c|}
\hline
\text{Critical point:} & D = f_{xx}f_{yy} - f_{xy}^2 & f_{xx} & \text{nature} \\
\hline
(x, y) = & D = & f_{xx} = & \\
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(x, y) = & D = & f_{xx} = & \\
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(x, y) = & D = & f_{xx} = & \\
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(x, y) = & D = & f_{xx} = & \\
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\end{array}
\]