Vector Fields
Scalar and Vector Fields

Question
Sketch the following plane vector field and determine its field lines.
$\underline{F}(x, y) = \nabla(x^2 - y)$
Answer

The field lines satisfy $\frac{dx}{2x} = \frac{dy}{-1}$.
They are the curves
$y = -\frac{1}{2}\ln x + C$.