4. (7 points) Phase portraits

Find the general solution of

\[ x' = \begin{pmatrix} 1 & 0 \\ -1 & 2 \end{pmatrix} x. \]

State whether the origin is a node, saddle point, spiral or center. And draw a phase portrait for the system. If the origin is a spiral or center, you don’t need to find the axes but do find the direction of rotation (i.e. clockwise or counterclockwise).