

Name:

1. (a) Find the general solution to the following differential equation.

$$\mathbf{x}' = \frac{1}{3} \begin{pmatrix} 7 & 1 \\ 2 & 8 \end{pmatrix} \mathbf{x}$$

- (b) Which type of equilibrium point is the origin for the above differential equation? Circle one.
- i. source
  - ii. sink
  - iii. saddle point

2. Find the general solution to the following differential equation.

$$\mathbf{x}' = \begin{pmatrix} -2 & 2 \\ -5 & 4 \end{pmatrix} \mathbf{x}$$