

Name:

1. Calculate the Wronskian $W(f_1, f_2, f_3)$ for the functions

$$f_1(t) = t, \quad f_2(t) = \cos t, \quad f_3(t) = e^t.$$

2. Solve the following initial value problem, and describe the behavior of the solution as $t \rightarrow \infty$.

$$\mathbf{x}' = \begin{pmatrix} 3 & -2 \\ 2 & -2 \end{pmatrix} \mathbf{x}, \quad \mathbf{x}(0) = \begin{pmatrix} 3 \\ -4 \end{pmatrix}$$