1. (a) Find general complex-valued solution the system of differential equations

\[ x'_1(t) = x_1(t) - 4x_2(t); \]
\[ x'_2(t) = x_1(t) + x_2(t). \]

(b) Now find the general real-valued solution.

(c) What happens to the trajectory as \( t \to \infty \)?

(d) What type of phase trajectory is this?

2. (a) Find the general solution to the system

\[ x'_1(t) = 3x_1(t) + 8x_2(t); \]
\[ x'_2(t) = 3x_2(t). \]

(b) What happens to the trajectory as \( t \to \infty \)?

(c) What type of phase trajectory is this?