(10 points) Determine whether

The matrix

is complete.

You may use that

You may use that

is linearly dependent.

The general solution of

is

\( x_1 = 2c_1 e^{-2t} + c_2 e^{-t} \)
\( x_2 = -c_1 e^{-2t} - c_2 e^{-t} + e^{-t} \).
\( x_3 = c_1 e^{4t} + c_2 e^{-4t} - 2 \).

(10 points) Find the general solution of

\( \vec{A} \vec{x} = (0) \):
\( x_1 = 0 \)
\( x_2 = 0 \)
\( x_3 = 0 \).

(10 points) Find the general solution of

\( \vec{A} \vec{x} = (0) \):
\( x_1 = 0 \)
\( x_2 = 0 \)
\( x_3 = 0 \).

You may use that

\( A^2 = \)

(10 points) Show that any set of vectors that includes \( \vec{0} \) is linearly dependent.