Math 274 Quiz 9 **Name:** _____

Sections: 7.1-8.1 Point values in boxes.

5 April 2019

1. [2] Compute the following product.

$$\begin{bmatrix} 1 & 2 \\ 3 & -5 \end{bmatrix} \begin{bmatrix} 2 & -2 \\ 1 & 0 \end{bmatrix} =$$

2. [4] Show that $x(t) = 2e^{2t} - 2e^{-t}$ and $y(t) = 2e^{2t} - e^{-t}$ are solutions to the system

$$x' = -4x + 6y,$$
$$y' = -3x + 5y.$$

3. [4] Write the following initial value problem as a system of first-order equations using vector notation.

$$y'' + y' + ky = \sin t, \qquad y(0) = 1, y'(0) = 3$$