First-Order Systems- HW Problems

Solve the following first order systems:

1. $x' = 4y$
   $y' = -2x.$

2. $x' = -8y$
   $y' = 4x$

3. $x' = -2y;$ $\quad x(0) = 2$
   $y' = 2x;$ $\quad\quad y(0) = 1$

4. $x' = y;$ $\quad\quad\quad x(0) = 1$
   $y' = 6x - y;$ $\quad y(0) = -8$

5. $x' = y$
   $y' = 6x + y$