1. Solve the given differential equations by separation or variables.
   
   (a) $yy' = x(1 + y^2)$

   (b) $y' = \frac{(1 - y)^5}{4}$

   (c) $y' = 5(1 + x)^4$
(d) \( y' = y(y - 1) \)

(e) \( y' = 2xe^{x^2-y} \)

2. Solve the separable initial value problem.

\[ y' = 2x \cos(x^2)(1 + y^2), \quad y(0) = 1. \]