1. Find the general solution of the given differential equation. Give the largest interval $I$ over which the general solution is defined. Determine whether there are any transient terms in the general solution.

   (a) $y' + 5y = 2$

   (b) $2y' + 10y = 4$

   (c) $y' + 5y = 50x$
(d) \( y' + \frac{5}{x}y = 8x^2 \)

(e) \( xy' + (1 + 5x)y = 10e^{-5x} \)