

1. Solve the following DEs. What is the possible maximum solution interval for each DE?  
Is there any transient term in the solutions?

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

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

(c)  $y' + 5y = 50x$

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

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