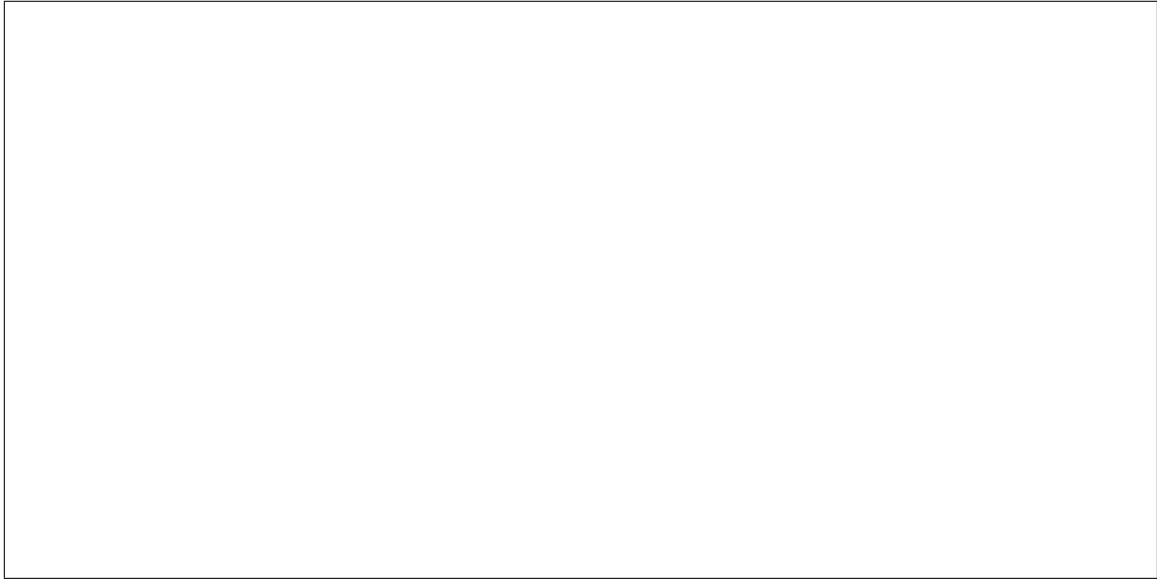


4. (a) (4 points) Solve the initial-value problem  $x' = x^2/t + 3x^2t^2$ ,  $x(-1) = \frac{1}{2}$ , for  $x = x(t)$ .



- (b) (4 points) A general solution of the differential equation  $x' = t/x$  for  $x = x(t)$  has the implicit form  $x^2 - t^2 = C$ . Find the (maximal) interval of existence of the solution with initial condition  $x(5) = 4$ .

