1. Find the solutions to
$$x' - \frac{x}{t} = \frac{1}{2x}$$
subject to initial conditions $x(1) = 2$, $x(1) = -1$ and $x(-2) = 1$. Do not forget to specify the domain (interval) of definition!

2. Find all the solutions to
$$tx' = x \left(1 + \ln \left(y/x\right)\right)$$