1. Solve
$$\begin{cases} t^2 \cdot \frac{dx}{dt} &= x^3 - 2xt \\ x(1) &= 1. \end{cases}$$

2. Solve
$$(2x^5 - 3xy)dy + (5x^4y - y^2)dx = 0$$

3. Solve
$$\begin{cases} y'(x) &= \frac{y(x)+2x}{y(x)-x} \\ y'(1) &= 2. \end{cases}$$

4. Solve
$$\begin{cases} y'(x) &= (x+y) \cdot \ln(x+y) + x + y - 1 \\ y(0) &= e \end{cases}$$