Math 1005H Fall 2018
Tutorial 1 Problems

1. Solve the initial value problem $2yy' = xe^x$, $y(0) = -4$.

2. Find the orthogonal trajectories of the one-parameter family of curves

$$y = \sqrt{x + c}.$$

3. Solve $y' = 4xe^{x^2}\sqrt{y}$ (for $y \geq 0$).

4. Solve

$$y' + ay + b = 0$$

where a and b are constants with $a \neq 0$.

5. Solve

$$xy' - y = x\cos^2\left(\frac{y}{x}\right).$$

6. Solve

$$y' = \frac{9x + y}{x + y}.$$