Exercise sheet 2 for Math 263: ODEs for Engineers   Matt Roberts
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Solve the following ODEs:

1. $y^2 \cot x + 2y(1 + 2 \operatorname{cosec} x)y' = 0, \quad x \in (-\infty, \infty), \quad y(0) = 1.$

2. $y^2 \cot x + 2y(1 + 3y \operatorname{cosec} x)y' = 0, \quad x \in (-\pi/2, \pi/2), \quad y(0) = 1.$

3. $1 + 2x^2 + (e^{-x^2} + yx)y^{-2}y' = 0, \quad x > 0, \quad y(1) = 1.$

If you spot any errors, please inform me: `matthew.roberts@mcgill.ca`