

Lesson 7.1: Solving Differential Equations

Differential Equations

_____ are equations with _____ in them.

We will be working with differential equations in which you can _____ variables.

You may be asked to find a general solution of the differential equation (which gives you a family of curves) or a particular solution (just one curve).

Procedure for Solving Differential Equations

1.
2.
3.
4.
5.
6.

*Note:

Examples:

1. Find the general solution of $x + 2yy' = 0$.

Write your solution to Example 1 as a pair of possible functions (in the form $y = f(x)$) for the particular solutions to the differential equation.

$y =$ *or* $y =$

2. Find an equation of a function which contains the point $(0, -3)$, and whose slope is $\frac{xe^{x^2}}{y}$ for each point (x, y) on the curve.

3. Find a general solution of $y - 2 = x \frac{dy}{dx}$.

Find a particular solution of $y - 2 = x \frac{dy}{dx}$ if $y(1) = \frac{1}{2}$.

