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5.14 Differential equations

Checklist

What you should know

By the end of this subtopic you should:

- be able to identify and classify a differential equation by type, order, and linearity

- be able to work with first-order differential equations of the form $y' = F(x, y)$

- know that a general solution is a function y that satisfies the differential equation and that there are usually infinitely many solutions

- be able to find an exact solution of a separable differentiable equation

- know that a solution that satisfies an initial condition $y(x_0) = y_0$ is called a particular solution of the differential equation

- understand that the first step of the solution for separable differentiable equation is separating the variables

- be able to rearrange a separable differentiable equation into the form $y' = f(x)g(y)$.

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