Solving Differential Equations Using GeoGebra

What is a differential equation?

A: a differential equation is any equation that contains derivatives, either ordinary or partial.

Examples of Differential equations:

1.



2.



Using Geogebra to solve Differential Equations:

**Step 1.** Slope fields and solving differential equations

To plot a slope field use SlopeField[f] in the

Algebra View, e.g.

* f(x,y)= 2x^2
* SlopeField[f]

**Step 2.** To find a particular solution use SolveODE[f,A]

in the Algebra View, e.g.

* A=(1,3)
* SolveODE[f,A]



**Step 3.** To find a general solution use

SolveODE[equation] in the CAS View, e.g.

* SolveODE[y’=2x^2]



**Step 4.** Second Order Differential Equations:

 Using the CAS toolbox input:

SolveODE[ <Equation>, <Point(s) on f>, <Point(s) on f'> ]



Use this command in Geogebra to solve for Second order differential equation

References:

1. “Further Pure Mathematics with Technology.” *MEI*, mei.org.uk/fpt.
2. *Differential Equations - Definitions*, tutorial.math.lamar.edu/Classes/DE/Definitions.aspx.
3. *Separable Equations*, www.cliffsnotes.com/study-guides/differential-equations/first-order-equations/separable-equations.