

Warm-Up

Find the general antiderivative of:

$$\frac{dy}{dx} = \cos x$$

$$\frac{dy}{dx} = x^2 + 6x + 5$$

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6.1a Differential Equations and Slope Fields

Find all solutions to the differential equation $\frac{dy}{dx} = \sec^2 x + 2x + 5$

Find the specific solution that satisfies the initial conditions:
 $x=0, y=7$

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Find all solutions to the differential equation: $\frac{dy}{dx} = 2e^x - \cos x$

Find the particular solution to the differential equation that passes through the point (0, 3).

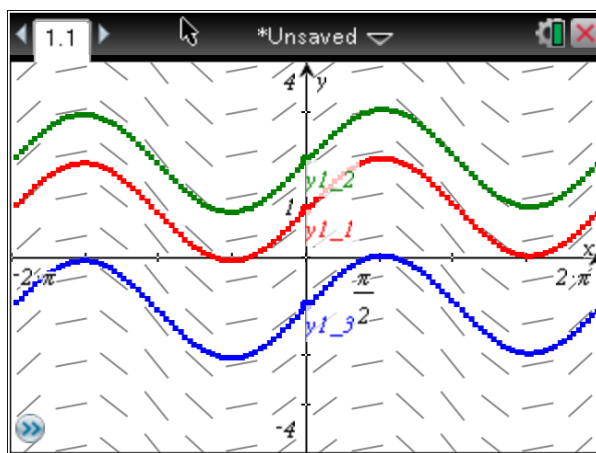
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Find the general and specific solutions to $\frac{dy}{dx} = e^x - 6x^2$
initial conditions: (1, 0)

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Slope Fields:

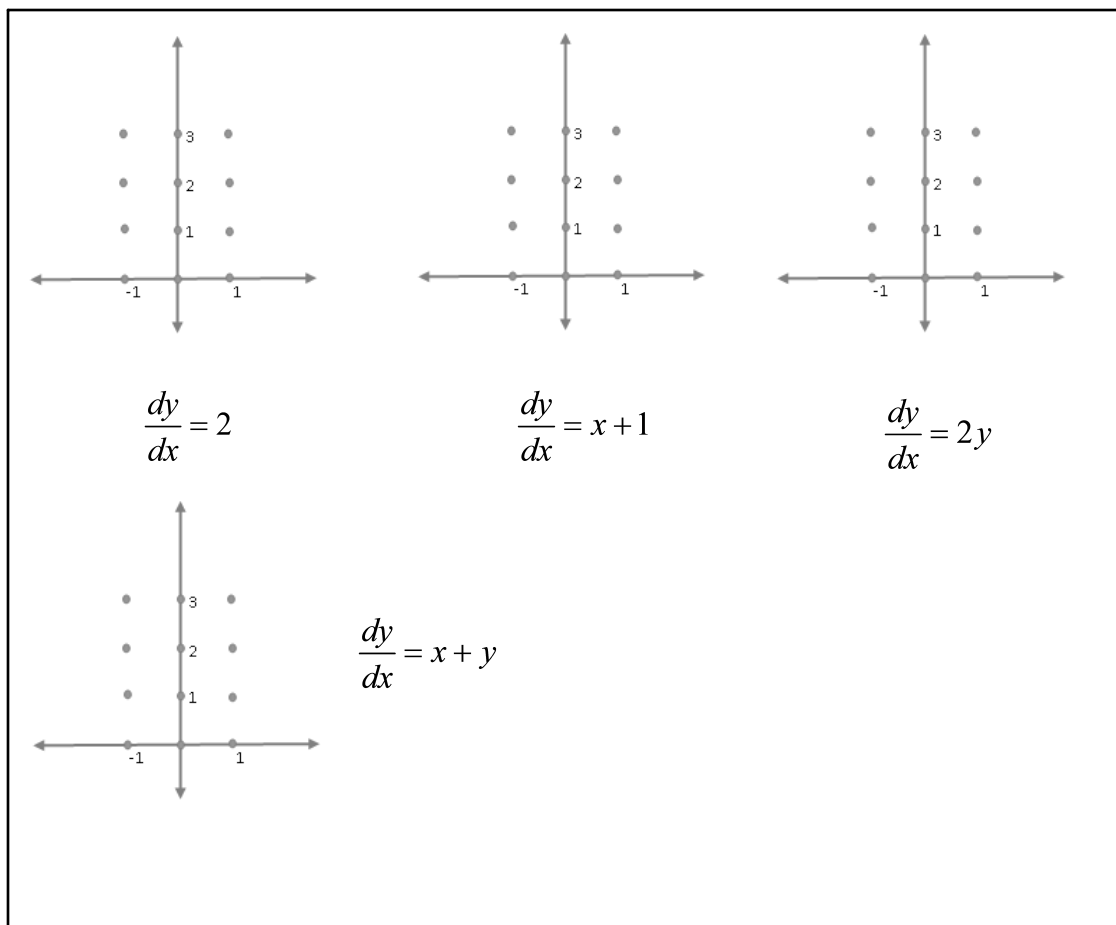
$$y' = \cos(x)$$



A slope field allows us to look at possible solutions without actually solving through algebraic methods.

We have a family of possibilities:

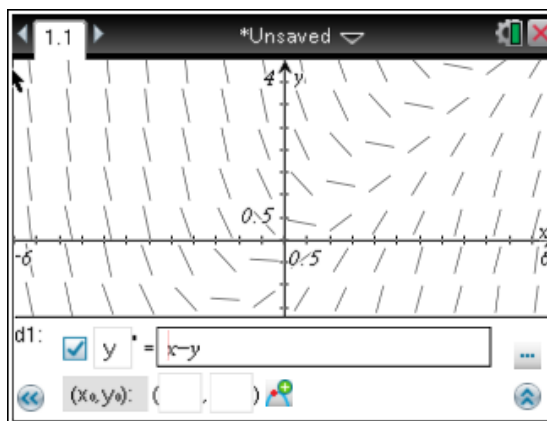
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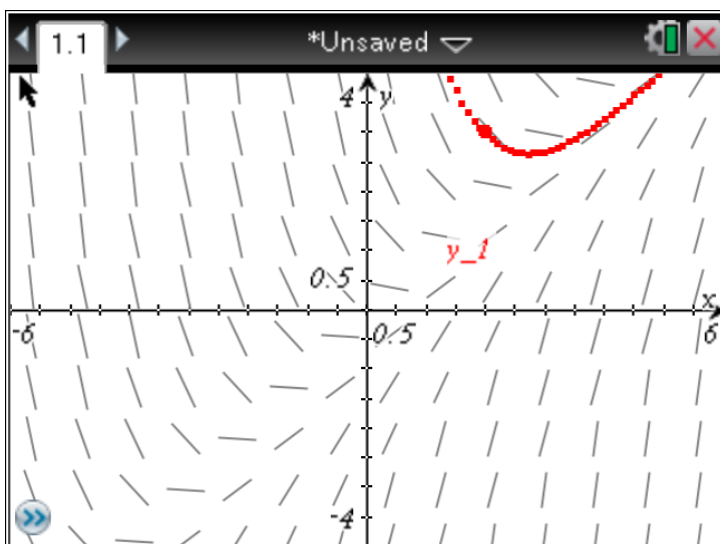
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$$\frac{dy}{dx} = x - y$$

initial condition (2,3)



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