

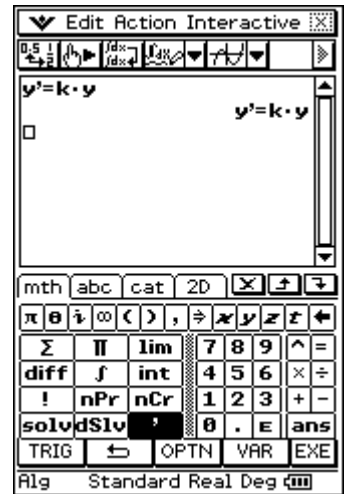
<b>Classpad Help Series sponsored by Casio Education Australia</b>		<b>www.casioed.net.au</b>	
270	Use Of dSolve In Growth And Decay Problems	Author	Charlie Watson
		Date	31 January 2010
		CPM OS	03.04.4000

The number of people,  $y$ , with a certain illness can be modelled over time,  $t$ , with the equation  $\frac{dy}{dt} = ky$  or simply  $y' = ky$ . Originally there were 420 people with the illness. 2 weeks later this number had increased to 500.

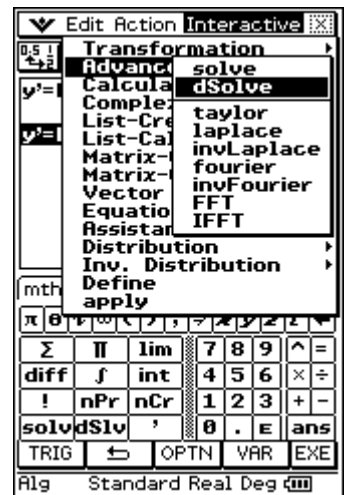
Determine (i)  $k$ , (ii) how many people are expected to have the illness after 5 weeks and (iii) how long until 1000 people have the illness.

Start in Main and enter the equation  $y' = ky$ .

Find the prime using the *math* tab, *CALC*.



Tap **Interactive**, **Advanced**, **dSolve**.

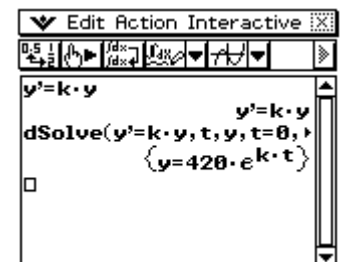


Tap **Include condition**.

Enter the data and tap **OK**.



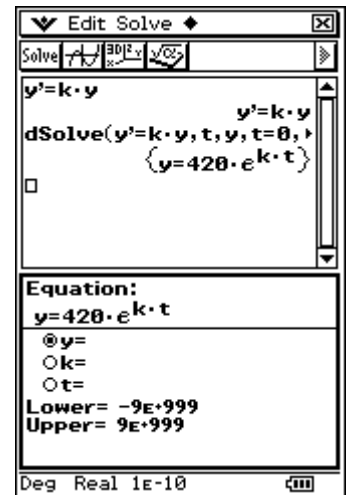
A solution is returned.



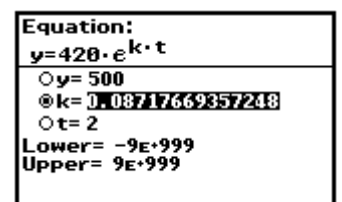
Open **NumSolve** in the bottom half of the screen.

Drag the solution into the equation entry area.

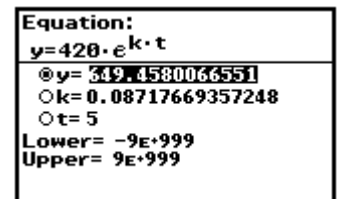
Tap **EXE**.



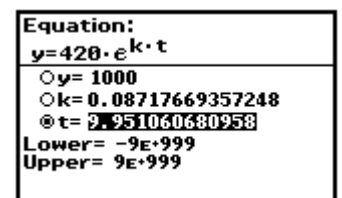
Enter the values  $y = 500$  when  $t = 2$  and solve for  $k$ .



Change  $t = 5$  and solve for  $y$ .



Change  $y = 1000$  and solve for  $t$ .



Close NumSolve and tap **Edit, Clear All Variables** in Main.

*(This clears the values assigned to the variables  $y$ ,  $k$  and  $t$  in NumSolve.)*

