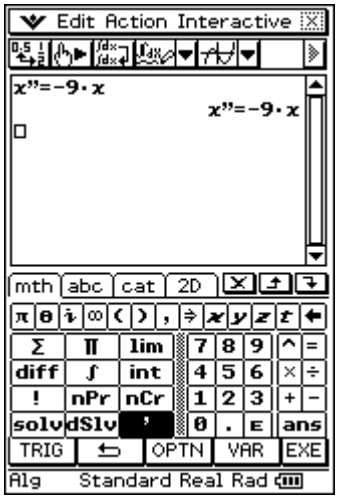
Classpad Help Series sponsored by Casio Education Australia		www.casioed.net.au	
271	Use dSolve With Simple Harmonic Equations	Author	Charlie Watson
		Date	31 January 2010
		CPM OS	**03.04.4000**

Start in Main.

With a second order differential equation such as $x'' = -9x$, Classpad reminds us that a trig solution is appropriate.

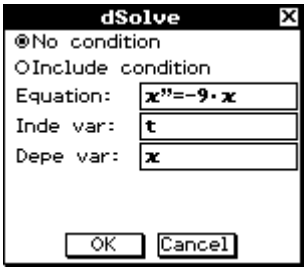
Enter the equation (using the **mth** tab and **CALC**) and tap **EXE**.



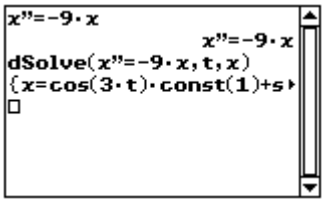
Select a copy of the equation.

Tap **Interactive, Advanced, dSolve**.

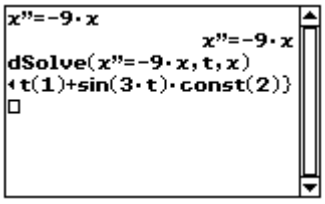
Set the variables and tap **OK**.



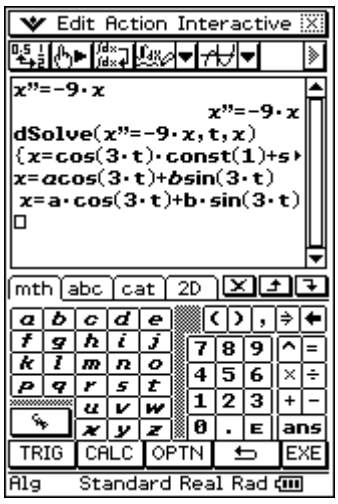
Classpad returns constants as **const(1)**, **const(2)** and so on.



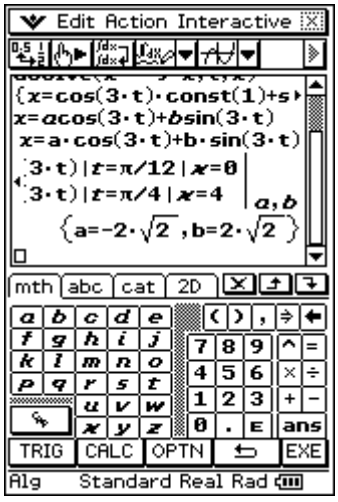
Scroll to the right to see the complete solution.



Replacing **const(1)**, **const(2)** with *a*, *b*, etc is often a good idea.



If some conditions are known, such as when $t = \frac{\pi}{12}, x = 0$ and when $t = \frac{\pi}{4}, x = 4$ then these can be used with the simultaneous solver to determine the values of the constants *a* and *b*.



To keep the function manageable, define it as $f(t)$.