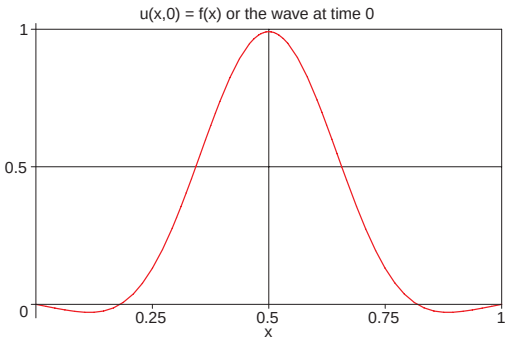
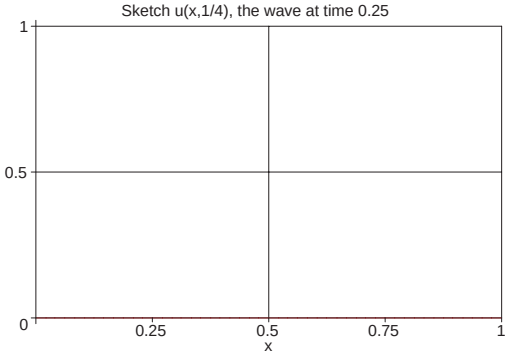
MAP 3306 eMath2 **Quiz 5** 22 Jun 2007 Name: _____

Directions: Show **ALL** work for credit; Give **EXACT** answers when possible; **SIMPLIFY** your answers;

1. Find the Fourier series solution (and not D'Alembert's) $u = u(x,t)$ for the vibrating string of length $L = 1$ and $c^2 = 1$ when the initial velocity is zero and the initial deflection is given by the function $f(x) = 0.588\sin(\pi x) - 0.339\sin(3\pi x) + 0.0642\sin(5\pi x)$ which is graphed below left. Sketch the graph of $u(x, 1/4)$ on the graph to the below right. [Hint: Two things, the series solution and the graph.]





$u(x,t) =$