

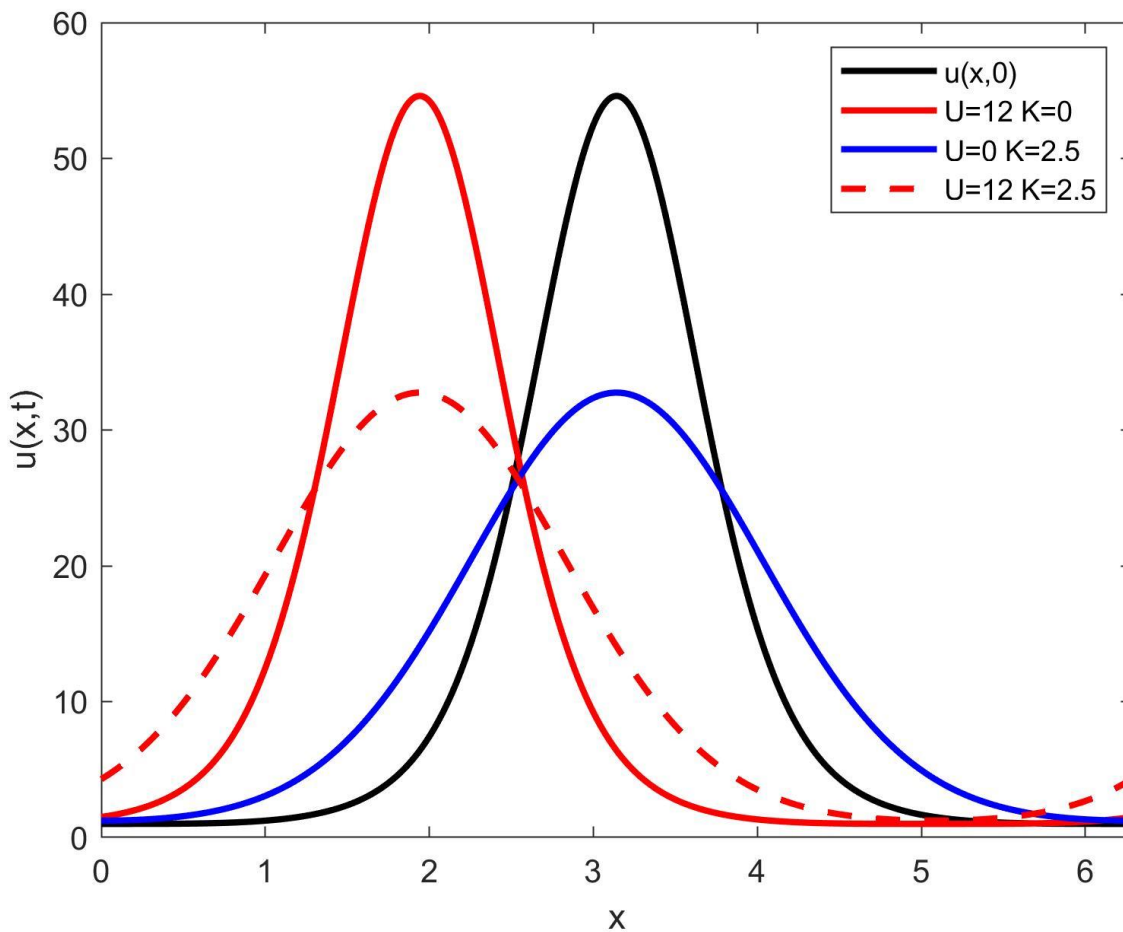
Prob 1

$$u(x, t) = \sum_{n=-\infty}^{\infty} C_n(0) e^{(inU - n^2K)t + inx}$$

where

$$C_n(0) = \frac{1}{2\pi} \int_0^{2\pi} u(x, 0) e^{-inx} dx$$

Plot:



Prob 2

$$u(x, t) = e^{-16t} + \sin(2x - 4t^2)$$

Prob 3

$$u(x, t) = t \sin(x) + \cos(3x) \cosh(\sqrt{8} t)$$