

MAE 502, Spring 2019 HW5 Solution

Prob 1

(a)

$$u(x, t) = \frac{1}{\sqrt{1+4t}} e^{-\frac{(x+3t)^2}{1+4t}}$$

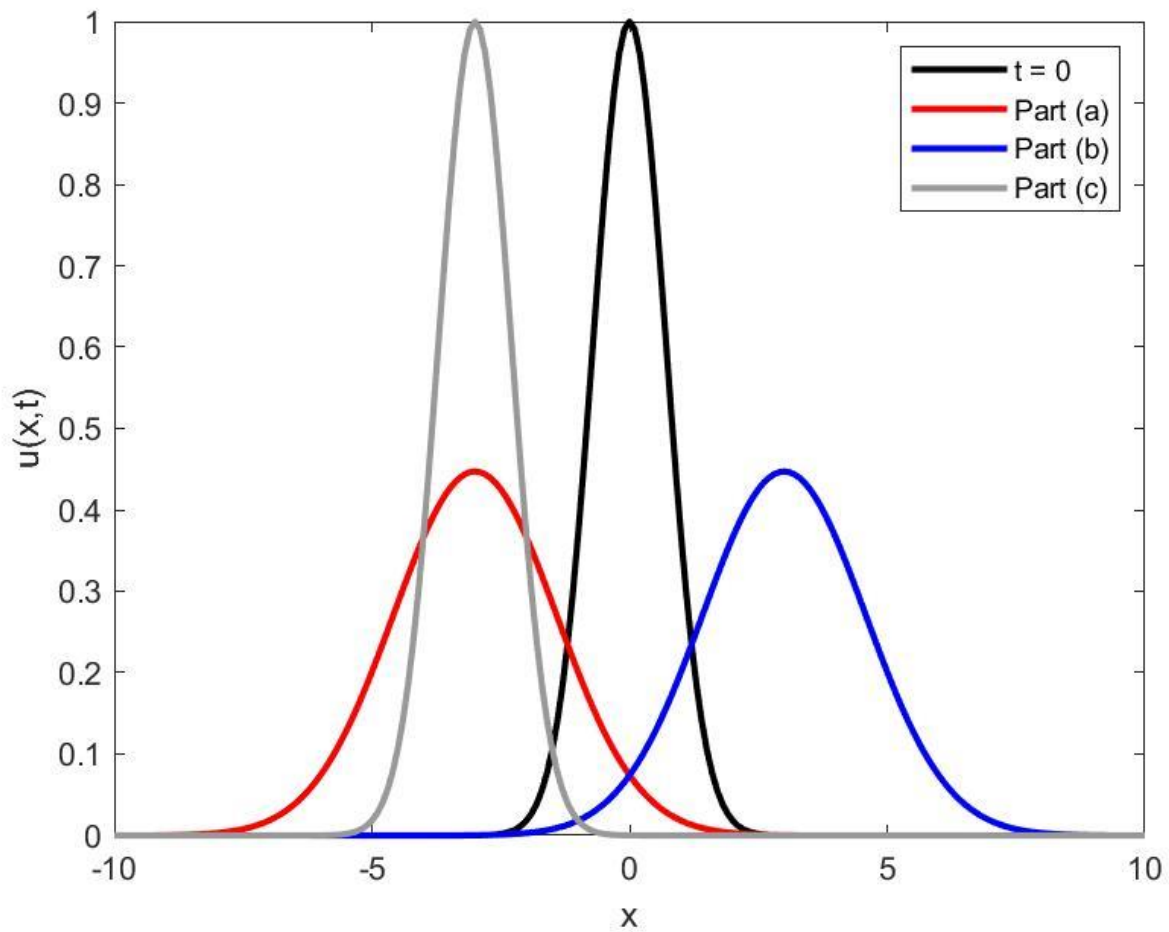
(b)

$$u(x, t) = \frac{1}{\sqrt{1+4t}} e^{-\frac{(x-3t)^2}{1+4t}}$$

(c)

$$u(x, t) = e^{-(x+3t)^2}$$

Plot:



Prob 2

$$u(x, t) = e^{-\left(x+t+\frac{t^2}{2}\right)^2 + (1-e^{-t})}$$

Prob 3

$$u(2, 4) = \frac{1}{5}$$