

9.(8 points)

(a) Show that the function $f(x) = e^{-x^2/2}$ is concave down on the interval $-1 < x < 1$ and concave up if $x > 1$ or $x < -1$. [Be sure to show your work.]

(b) Find the member of the family of functions given by $y = e^{-(x-a)^2/b}$ that has a maximum at $x = 3$ and is concave down on the interval $1 < x < 5$.