

(4.) (12 points) Consider the function:

$$f(x) = e^{-\frac{(ax)^2}{2}}, \quad \text{for } a \text{ a positive constant.}$$

The graph of $y = f(x)$ is the (in)famous “bell curve,” which occurs frequently in statistics, and occasionally in heated political debates as well.

(a) Compute $f''(x)$. Show your work.

(b) For which value of a does the function f have an inflection point at $x = 3$?