4.6 Review Questions

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4.6.R1

1/1 point (graded)

Which of the following is NOT a linear function in x:

- $f(x) = a + b^2 x$
- The discriminant function from LDA
- $\delta_k(x) = x\frac{\mu_k}{\sigma^2} - \frac{\mu_k^2}{2\sigma^2} + \log(\pi_k)$
- $\text{logit}(P(y=1|x))$ where $P(y=1|x)$ is as in logistic regression
- $P(y=1|x)$ from logistic regression ✔

Explanation

$P(y=1|x)$ from logistic regression is not linear because it involves both an exponential function of x and a ratio. Notice that $f(x) = a + b^2 x$ is not a linear function of b, but is a linear function of x.