# Chapter 3.7 Exercises

1.) Math: $\beta_1 = 0$

words: This means the null is there is no relationship between $ in TV advert & sales.

@ the 5% level, since $<.0001 < .05$, I conclude I reject $H_0$, and I thus believe there is sig + relationship between TV advert & sales.

2) KNN {classifier / regression} used when response var is {categorical / continuous}

KNN {C / R} predicts by taking {plurality vote / Bayes classif / wt/unwt avg of nbors}

3.) (a)

$$Y = B_0 + .07(IQ) + 35(1_{fem}) + .01\cdot(GPA * IQ) - 10(GPA * Gender)$$

$Y = 35 - 10 \cdot GPA \rightarrow$ Partial Eff of femal

$Y > 0$ when $GPA < 3.5$

(iii)

(b) ~~$Y_{Pred} = 50 + (.07)(110) + 35(1) + (.01)(4)(110) - 10(4) = 41.7$~~ 137.1

$$Y_{Pred} = 50 + 20(4) + (.07)(110) + 35 + (.01)(4)(110) - 10(4)(1) = 137.1$$

(c) False, want to look @ t-stat = $\frac{\text{est}}{\text{std error}}$ to determine this.