1. The lecture goes over how linear regression can answer research questions typically reserved for specialty statistics like the t-test and ANOVA. The Pearson correlation coefficient has the form of $r = \frac{COV[X,Y]}{STD[X]STD[Y]}$, how does this compare to the ordinary least squares solution for $\hat{\beta}_1$? Provide a quantitative comparison of the two methods.
2. Provide an explanation for why polynomial models still meet the assumptions of normal linear regression. Justify against each of the 4 assumptions for ordinary least squares regression.