EDS241: Take Home Final

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```
# Load data
data <- read.csv(here("KM_EDS241.csv"))
```

7 variables: -`rprice`: sales price of house -`nearinc`: =1 if near incinerator -`age`: age of house -`land`: square footage of the lot -`area`: square footage of the house -`rooms`: number of rooms -`year`: 1978 or 1981

(a) Using the data for 1981, estimate a simple OLS regression of real house values on the indicator for being located near the incinerator in 1981.

```
# subset data
data_1981 <- data %>% filter(year == 1981)
```

```
model <- lm(data = data_1981, formula = rprice ~ nearinc)
summary(model)
```

```
##
## Call:
## lm(formula = rprice ~ nearinc, data = data_1981)
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -60678 -19832  -2997  21139 136754
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)   101308       3093  32.754  < 2e-16 ***
## nearinc       -30688       5828  -5.266 5.14e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 31240 on 140 degrees of freedom
## Multiple R-squared:  0.1653, Adjusted R-squared:  0.1594
## F-statistic: 27.73 on 1 and 140 DF,  p-value: 5.139e-07
```

```
model_robust <- lm_robust(data = data_1981, formula = rprice ~ nearinc)
summary(model_robust)
```

```
##
## Call:
## lm_robust(formula = rprice ~ nearinc, data = data_1981)
```

```
##
## Standard error type:  HC2
##
## Coefficients:
##             Estimate Std. Error t value  Pr(>|t|) CI Lower CI Upper  DF
## (Intercept)   101308       2945  34.402 3.633e-70    95485   107130 140
## nearinc       -30688       6243  -4.915 2.442e-06   -43031   -18345 140
##
## Multiple R-squared:  0.1653 ,    Adjusted R-squared:  0.1594
## F-statistic: 24.16 on 1 and 140 DF,  p-value: 2.442e-06
```

What is the house value "penalty" for houses located near the incinerator? Does this estimated coefficient correspond to the 'causal'effect of the incinerator (and the negative amenities that come with it) on housing values? Explain why or why not.

The house value "penalty" for houses located near the incinerator is $rprice ~ nearinc