# Econ HW 2

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1. Find Aggregate Demand

```
# Find demand curves using linear regression:

demand_high <- lm(data = demand, price ~ qhigh)
demand_low <- lm(data = demand, price ~ qlow)

int_h <- demand_high$coefficients[1]
q_high <- abs(demand_high$coefficients[2])

int_l <- demand_low$coefficients[1]
q_low <- abs(demand_low$coefficients[2])
```

High income demand curve:
$Price = (23.3914418) - (1.2966378 \times 10^{-4})Q$

Low income demand curve:
$Price = (21.9908534) - (1.3551741 \times 10^{-4})Q$

```
# Writing functions for supply/demand:

d_high <- function(q) {
  23.391 - 0.0001297*q
}

d_high(80000)
```

```
## [1] 13.015
```

```
d_low <- function(q) {
  21.991 - 0.0001355*q
}

d_high(5)
```

```
## [1] 23.39035
```

```
mpc <- function(q) {
  0.0000187*q
}

mec <- function(y) {
  2
}

d_agg <- function(q) {
  22.710 - 0.0000662*q
}
```

Aggregate demand:

```r
#graphing the functions

ggplot(data.frame(x=c(70000:200000)), aes(x=x)) +
  stat_function(fun=d_high, geom ="line", color = "seagreen") +
  stat_function(fun=d_low, geom = "line", color = "goldenrod") +
  stat_function(fun=mpc, geom = "line") +
  stat_function(fun=mec, geom = "line", color = "red") +
  stat_function(fun=d_agg, geom = "line", color = "blue")+
  labs(x = "Quantity of Gas", y = "Price")+
  theme_bw()
```