Handout (Interpreting and Predicting)
(Schwartz; Math 157)

Work the problems on your own paper just like a normal homework assignment.

For each of the following, assume that **everything that is produced is sold**.

1. Let $P(x)$ be the total profit (in $) from selling x tons of fuel.
   (a) Suppose that $P(5) = 1,300$ and $P'(5) = 150$.
      i. Describe how the profit is changing when production is at $x = 5$ tons.
      ii. Determine the average profit at this production level.
      iii. Determine the approximate total profit if we increase production to 5.7 tons of fuel.
   (b) Suppose that $P(10) = 1,700$ and $P'(10) = -30$.
      i. Would you advise increasing production at this point? Explain.
      ii. Explain the relationship between the marginal cost and the marginal revenue when production is at $x = 10$ tons.

2. Suppose that we are at a point where the average cost is less than the marginal cost. Should the average cost increase or decrease if we increase production by one unit? Explain.

3. Suppose that the average revenue is $13 per barrel when we sell 500 barrels of Yum-Yuck, and that the marginal revenue is $11 per barrel at this point.
   (a) Predict the approximate total revenue from selling 503 barrels of Yum-Yuck. Explain.
   (b) Suppose that when production is at 500 barrels, the average cost is $8 per barrel and the marginal cost is $9.25 per barrel. Does it make sense to produce and sell more Yum-Yuck? Explain.

4. Which of AC, MC, AR, MR, AP, or MP would you pay more attention to if you were trying to decide whether to increase production? Explain.