Closing Tue: 2.3(part 2)
Closing Thu: 1.5, 4.1

Entry Task: You are given
$VC(q) = 0.01q^3 - 0.135q^2 + 0.6075q$
$MC(q) = 0.03q^2 - 0.27q + 0.6075$
   FC = 90 hundred dollars
   q is in **hundreds of Objects**
   VC is in **hundreds of dollars**
   MC is in **dollars/Object** (as always)

Set up (do not compute) how to answer:
1. Find the cost to make the 326th item.
2. If the selling price is $30 per object, at
   what quantity is profit is zero
   (break even points)
3. For what quantities is TR = VC?
4. What is break even price (BEP)?
5. What is shutdown price (SDP)?

Recall (yet again): Know these by heart!

TR(x) = p x , TC(x) = FC + VC(x)

AC(x) = TC(x) / x & x AC(x) = TC(x)

AVC(x) = VC(x)/ x & x AVC(x) = VC(x)

MR(x) = (TR(x+'one') − TR(x)) / 'one'

MC(x) = (TC(x+'one') − TC(x)) / 'one'

Quick Business Function Practice

(a) If TC(x) = $50 + 4x + x^2$,

AC(x) =

AVC(x) =

(b) If TR(x) = $5x − 2x^2$ hundred dollars
and x is in hundred items,
what is MR(x)?

MR(x) =

(c) If AVC(x) = 3 + 7x, FC = 5, p = 30 − 5x,
what are TR(x), VC(x), TC(x)?

TR(x) =

VC(x) =

TC(x) =

Chapter 4 Motivation

We just spent 2 weeks discussing some of the algebra needed to study linear and quadratic **one variable problems**.

We will spend the next week discussing problems with **two variables (selling two products)**.
We will only study *linear* two variable problems.

We will learn how to maximize and minimize two variable linear functions using the so-called **method of linear programming**. Before we can do this, we need to know how to:
1. Find intersections of lines. (1.5)
2. Graph inequalities. (4.1)

Example of 1.5 skills

Solve the system:
- (i) $4x - y = 3$
- (ii) $2x + 3y = 19$

*Example from 1.5 with words
(directly from homework)*:
Harry borrowed money from the bank
and from his life insurance to start a
business.
The bank loan has a 10% interest rate.
The insurance has a 12% interest rate.
If the total borrowed was $100,000 and
the total interest in the first year is
$10,700, how much did he borrow
from each?

Example of 4.1 Skills:
Graph the inequality
(shade the region):

$$4x - y \leq 5$$