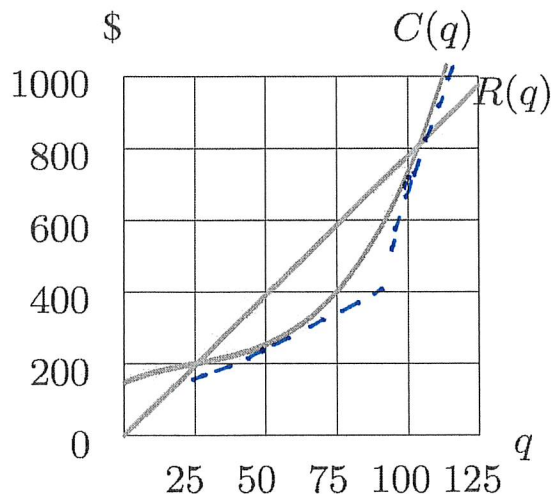


Name: **SOLUTIONS**
 Section 2.5 - In class example
 Math 151 - Spring 2018



1. Cost and revenue functions for a charter bus company are shown in the figure above. Should the company add a 50th bus? How about a 90th? Explain your answers using marginal revenue and marginal cost.

Notice that $MC(49) < MR(49)$ so add 50th bus

However $MC(89) > MR(89)$ so do not add 90th bus.

The tangent lines approximate the MC, MR is a constant.

2. A company's cost of producing q liters of a chemical is $C(q)$ dollars; this quantity can be sold for $R(q)$ dollars. Suppose $C(2000) = 5930$ and $R(2000) = 7780$.

- (a) What is the profit at a production level of 2000?

$$\begin{aligned} \pi(2000) &= R(2000) - C(2000) \\ 7780 - 5930 &= \$1850 \end{aligned}$$

- (b) If $MC(2000) = 2.1$ and $MR(2000) = 2.5$, what is the approximate change in profit if q is increased from 2000 to 2001? Should the company increase or decrease production from $q = 2000$?

$$\text{Yes, } MR(2000) = 2.5 > MC(2000)$$

- (c) If $MC(2000) = 4.77$ and $MR(2000) = 4.32$, should the company increase or decrease production from $q = 2000$?

No

$$MR(2000) = 4.32 < MC(2000)$$