Econ 243 Fri 14 Sept

• what is elasticity?

   - linear case

      » hyperbolic case

      » arbitrary - bow in, bow out

• elasticity calculation for a linear demand curve

   $\varepsilon = \Delta Q/Q \,/\, \Delta p/p = \Delta Q/Q \,/\, {-}b\Delta Q/(a{-}bQ) = (a{-}bQ)/{-}bQ$

• note that **_if_** MR≤0 then $\varepsilon \leq 1$ inelastic. When a firm has market power, it never wants to be on the right half of the demand curve.

   the logic is simple: if demand is inelastic, then a price increases causes a *less than proportional* drop in quantity and total revenue increases, while a lower quantity total costs decrease. Profits π **always** ↑.

• what is MR?

   - change in TR = d(MR)/dQ

   $\Rightarrow$ p = a - bQ

      $\Rightarrow$ TR = pQ = aQ - bQ^2

         $\Rightarrow$ MR = a - 2bQ

• For non-linear demand curves MR and ε are tedious to calculate. We'll assume that demand is linear – it doesn't affect our qualitative bottom lines. And furthermore firms generally have only limited data on (p,Q), all around the current price point. So they're often assuming that for small changes, the demand curve is linear. (*Do they know this is the mindset for doing calculus? Use slope $\Delta p/\Delta Q$ assuming small changes?*)

• so draw curve with market power. graphical solution with constant marginal costs.

   we could use upward-sloping marginal costs that reflect diminishing returns, but for our strategic problems the basic answer doesn't change, while the calculations for the intersection of lines (MR=MC) become tedious.

   jargon: we'll call **"monopoly"** most of the time

• go through homework