1) To date, Apple has sold approximately 85M Ipads at an average retail price of $600. With a marginal cost of approximately $300, Apple has made around $25B in profits off the Ipad!

Empirical estimates for the elasticity of demand for Ipads are around -2.

a) Suppose that Apple lowered the price of their Ipads to $510. Given the elasticity of demand, calculate the impact of this price drop on sales.

Elasticity is given by

$$\varepsilon = \frac{\%\Delta Q}{\%\Delta P}$$

The percent drop in price is

$$\left(\frac{510 - 600}{600}\right) \times 100 = -15\%$$

Therefore,

$$-2 = \frac{\%\Delta Q}{-15} \Rightarrow \%\Delta Q = 30$$

Ipad sales should rise by 30%.

b) Let’s assume that the demand curve for Ipads is linear. That is the demand curve for Ipads can be written as

$$Q = a - bP$$

Given the above data, calculate the parameters a and b.

$$b = -\varepsilon_d \left(\frac{Q}{P}\right) = 2 \left(\frac{85}{600}\right) = .28$$

$$a = Q + bP = 85 + .28(600) = 253$$
c) Given your demand curve estimated in part (b), calculate the price where Ipad sales would drop to zero.

From (b), we have the following demand curve for Ipads:

\[ Q = 253 - .28P \]

Now, set quantity equal to zero and solve for price:

\[ 0 = 253 - .28P \]

\[ P = \frac{253}{.28} = 903 \]

d) Calculate the total consumer surplus from Ipads.

![Graph showing consumer surplus]

Consumer Surplus = \( \frac{1}{2} \) (85M)($903-$600) = $12,877M