

Answer to Part A

$$Dm(w) = Dr(p(w))$$

$$\frac{dDm(w)}{dw} \times \frac{w}{Dm} = \frac{dDr}{dp} \times \frac{w}{p} \times \frac{dp}{dw} \quad \left(\text{Multiply left side by } \frac{w}{Dm} \text{ and the right side by } \frac{w}{Dr} \right)$$

$$\varepsilon_m = \frac{dDr}{dp} \times \frac{p}{Dr} \times \frac{w}{p} \times \frac{dp}{dw}$$

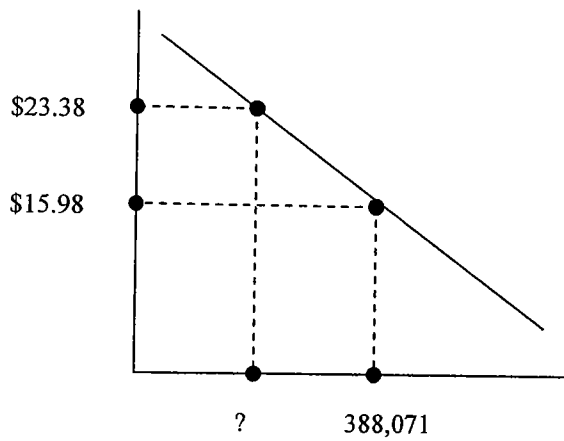
$$\varepsilon_m = \varepsilon_r \times \frac{w}{p} \times \frac{dp}{dw} \quad \left(\text{Assume } \frac{dp}{dw} = 1 \text{ or } 100\% \text{ pass on} \right)$$

$$\varepsilon_m = \varepsilon_r \left(\frac{w}{p} \right)$$

$$\varepsilon_m = -.345 \left(\frac{.075}{3.86} \right)$$

$$\varepsilon_m = -.0067$$

Answer to Part B



Assume linear demand. Then the slope of the demand curve is $\frac{dQ}{dP}$. Solve for $\frac{dQ}{dP}$.

$$\frac{dQ}{dP} \times \frac{P}{Q} = -.0067$$

$$\frac{dQ}{dP} \times \frac{15.98}{388,071} = -.0067$$

$$\frac{dQ}{dP} = 162.7$$

The price increase is \$7.40 so the output declines by $\$7.40 \times 162.7 = 1,204$ lbs.

$$388,071 - 1,204 = 386,867 \text{ lbs.}$$