

problem: Yesterday the price of envelopes was \$3 a box and Julie was willing to buy 10 boxes. Today the price has gone up to \$3.75 a box and Julie is willing to buy 8 boxes. Determine the elasticity of demand and also remark on the price elasticity.

Ans.: $\epsilon = \frac{\% \Delta q}{\% \Delta p}$ % change in quantity = $\frac{(\text{new quantity} - \text{old quantity})}{\text{old quantity}}$

$$= \% \left(\frac{8-10}{10} \right) = \frac{-2}{10}$$

$$= \frac{-2}{10} \times 100$$

$$= -20\%$$

% change in price = $\% \left(\frac{\$3.75 - \$3.00}{\$3.00} \right) \cdot \% \left(\frac{0.75}{3} \right)$

$$= 25\%$$

$\therefore \epsilon = \frac{-20}{25} = -\frac{4}{5}$; $|\epsilon| < 1$, hence price inelastic.

$1 + \epsilon = 1 - \frac{4}{5} = \frac{1}{5}$, demand elasticity = $\frac{1}{5}$