CONCEPT: ELASTICITY AND THE MIDPOINT METHOD

• To make our calculations consistent, we use the midpoint method:

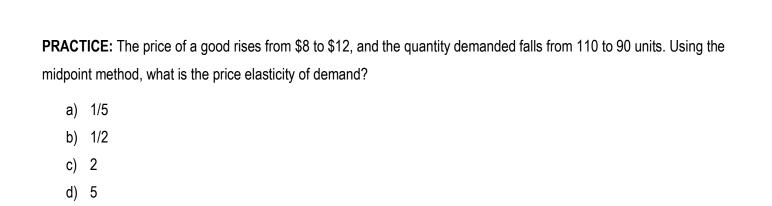
$$Price \ Elasticity \ of \ Demand = \frac{Change \ (\Delta) \ in \ Quantity}{Sum \ of \ Quantities/2} \ \div \frac{Change \ (\Delta) \ in \ Price}{Sum \ Of \ Prices/2}$$

Steps for calculating Price Elasticity:

- 1. Subtract the two quantities and subtract the two prices.
- 2. Sum the two quantities and sum the two prices.
- 3. Divide your Quantity Sum by two. Divide your Price Sum by two.
- 4. Divide your answers from Steps 1 and 3. (Step 1 ÷ Step 3 for both quantity and price)
- 5. Divide your answers from Step 4. (Quantity ÷ Price)

EXAMPLE: A pizza company's lunch special currently costs \$5. At this price, the weekly demand is 2,000 lunch specials. If they raise their price to \$6, the weekly demand will drop to 1,400 lunch specials. What is the price elasticity of demand? Is it elastic or inelastic?

PRACTICE: The price of widgets is currently \$44 with a quantity demanded of 200,000 units. If the price decreases to \$36, the quantity demanded increases 280,000. Using the midpoint method, what is the price elasticity of demand? Is demand elastic or inelastic?



PRACTICE: Assume that the price elasticity of demand for cigarettes is 0.4. If a pack of cigarettes currently costs \$6 and the government aims to decrease smoking by 20 percent, by how much should it increase the price?

- a) \$1.20
- b) \$2.40
- c) \$3.00
- d) \$4.80