

Take-home Practice Problems 2

Not required to be turned in.

- For each of the following demand functions, find the own-price elasticity of demand when $P = 3$; then repeat if $Q = 10$. For each case, interpret what the elasticity implies.

(a) $P = 200 - 10Q$

(b) $Q = 250 - 5P$

- For each of the following demand functions, find the own-price flexibility of demand when $P = 10$; then repeat if $Q = 5$. Interpret what the flexibility implies.

(a) $2Q = 50 - 2P$

(b) $P = 90 - 10Q$

- For each of the following supply functions, find the *own-price* and *cross-price* elasticities of demand; then, interpret what the elasticity implies.

(a) $Q_{legs} = 15 - 2P_{legs} + 5P_{breasts}$

$P_{legs} = 2$ $P_{breasts} = 4$

(b) $P_{orange} = 5 - Q_{orange} + 1.5P_{apples}$

$P_{orange} = 1.50$ $P_{apples} = 1.25$

(c) $P_{strawberry} = 15 - 0.5Q_{strawberry} - 2P_{chocolate}$

$P_{strawberry} = 4$ $P_{chocolate} = 5$

- You are a farmer who can produce wheat and barley on the same land. Suppose that the supply of wheat follows the function:

$$Q_{wheat}^S = 100 + 2P_{wheat} + 4 \cdot Rain - 0.5P_{barley} - 1.5P_{fertilizer} + 3Q_{fertilizer}$$

You know that $P_{wheat} = \$7.00$, $Rain = 8 \text{ in.}$, $P_{barley} = \$4.00$, $P_{fertilizer} = \$20$, $Q_{fertilizer} = 40$.

Respond to the following:

- (a) How much more wheat will you sell if the market price of wheat increases by 1%?
 - i. How will producers respond in the short run?
 - ii. How will producers respond in the long run?
- (b) If the price of barley increases by 15%, will you plant more or less wheat? How much quantity of wheat will you change?
- (c) Suppose that you decided to decrease the price of fertilizer by 10%. How much will your production of wheat change?