

1. Problem

Consider the following inverse demand function: $p(x) = 36 - 0.6 \cdot x$ for the price p given the demanded quantity x . What is the price elasticity of demand at a price of $p = 6$?

- (a) -0.166
- (b) -0.914
- (c) -0.727
- (d) -0.200
- (e) -0.013

Solution

First, we obtain the demand function by inverting the inverse demand function: $x = D(p) = (36 - p)/0.6 = 60 - 1.666667 \cdot p$.

Then, at $p = 6$ the price elasticity of demand is

$$\frac{D'(p)}{D(p)}p = \frac{-1.666667}{50}6 = -0.2.$$

- (a) False
- (b) False
- (c) False
- (d) True
- (e) False

2. Problem

Consider the following inverse demand function: $p(x) = 45 - 0.75 \cdot x$ for the price p given the demanded quantity x . What is the price elasticity of demand at a price of $p = 6$?

- (a) -0.018
- (b) -0.120
- (c) -0.103
- (d) -0.154
- (e) -0.035

Solution

First, we obtain the demand function by inverting the inverse demand function: $x = D(p) = (45 - p)/0.75 = 60 - 1.333333 \cdot p$.

Then, at $p = 6$ the price elasticity of demand is

$$\frac{D'(p)}{D(p)}p = \frac{-1.333333}{52}6 = -0.153846.$$

- (a) False
- (b) False
- (c) False
- (d) True
- (e) False

3. Problem

Consider the following inverse demand function: $p(x) = 44 - 2.5 \cdot x$ for the price p given the demanded quantity x . What is the price elasticity of demand at a price of $p = 9$?

- (a) -1.855
- (b) -3.164
- (c) -0.257
- (d) -3.889
- (e) -3.555

Solution

First, we obtain the demand function by inverting the inverse demand function: $x = D(p) = (44 - p)/2.5 = 17.6 - 0.4 \cdot p$.

Then, at $p = 5$ the price elasticity of demand is

$$\frac{D'(p)}{D(p)}p = \frac{-0.4}{14}9 = -0.257143.$$

- (a) False
- (b) False
- (c) True
- (d) False
- (e) False

4. Problem

Consider the following inverse demand function: $p(x) = 46 - 1.25 \cdot x$ for the price p given the demanded quantity x . What is the price elasticity of demand at a price of $p = 6$?

- (a) -0.099
- (b) -0.014
- (c) -0.320
- (d) -0.150
- (e) -0.031

Solution

First, we obtain the demand function by inverting the inverse demand function: $x = D(p) = (46 - p)/1.25 = 36.8 - 0.8 \cdot p$.

Then, at $p = 5$ the price elasticity of demand is

$$\frac{D'(p)}{D(p)}p = \frac{-0.8}{32}6 = -0.15.$$

- (a) False
- (b) False
- (c) False
- (d) True
- (e) False

5. Problem

Consider the following inverse demand function: $p(x) = 23 - 0.1 \cdot x$ for the price p given the demanded quantity x . What is the price elasticity of demand at a price of $p = 15$?

- (a) -1.144
- (b) -1.875
- (c) -0.533

(d) -2.215

(e) -1.790

Solution

First, we obtain the demand function by inverting the inverse demand function: $x = D(p) = (23 - p)/0.1 = 230 - 10 \cdot p$.

Then, at $p = 5$ the price elasticity of demand is

$$\frac{D'(p)}{D(p)}p = \frac{-10}{80}15 = -1.875.$$

(a) False

(b) True

(c) False

(d) False

(e) False