

Elasticity of Demand: Sec 11.7, Problem 17

$$E(p) = -\frac{pf'(p)}{f(p)}.$$

Begin with the price-demand equation:

$$p + 0.005x = 30.$$

- (A) Express the demand x as a function of the price p .
- (B) Find the elasticity of demand $E(p)$.
- (C) What is the elasticity of demand when $p = \$10$?
If this price is increased by 10%, what is the approximate change in demand?
- (D) What is the elasticity of demand when $p = \$25$?
If this price is increased by 10%, what is the approximate change in demand?
- (E) What is the elasticity of demand when $p = \$15$?
If this price is increased by 10%, what is the approximate change in demand?

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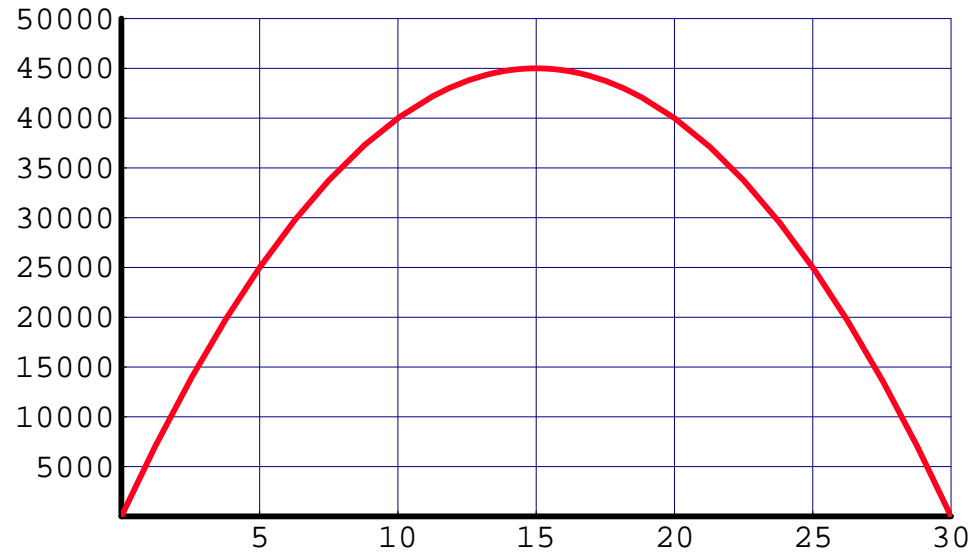
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Elasticity of Demand and Revenue, Sec 11.7, Problem 17



Revenue as a function of price. $R(p) = xp = 200(30 - p)p$.

Which price maximizes revenue?

How does this relate to elasticity?

Elasticity of Demand and Revenue, Sec 11.7, Problem 17

Elasticity of demand is 1 at the price where marginal revenue is zero:

$$E(p) = 1:$$

$$R'(p) = 0:$$

Elasticity of Demand: New Example

$$E(p) = -\frac{pf'(p)}{f(p)}.$$

Begin with the price-demand equation:

$$2p + 0.10x = 50.$$

(A) Express the demand x as a function of the price p .

(B) Find the elasticity of demand $E(p)$.

(C) What is the elasticity of demand when $p = \$15$?

If this price is increased by 20%, what is the approximate change in demand?

(D) What is the elasticity of demand when $p = \$20$?

If this price is increased by 5%, what is the approximate change in demand?

Elasticity of Demand: New Example continued

$$E(p) = -\frac{pf'(p)}{f(p)}.$$

Begin with the price-demand equation:

$$2p + 0.10x = 50.$$

(A) Express the demand x as a function of the price p .

(B) Find the elasticity of demand $E(p)$.

Elasticity of Demand: New Example continued

$$E(p) = -\frac{pf'(p)}{f(p)} = \quad .$$

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If this price is increased by 20%, what is the approximate change in demand?

Elasticity of Demand: New Example continued

$$E(p) = -\frac{pf'(p)}{f(p)} = \quad .$$

(D) What is the elasticity of demand when $p = \$20$?

If this price is increased by 5%, what is the approximate change in demand?