KNEWTON | alta

Relative Rate of Change and Elasticity of Demand

Learning Objectives

- Find the relative and percentage rate of change of a function
- Compute elasticity of demand
- Interpret elasticity of demand

Find the relative and percentage rate of change of a function

1. Consider the demand function $q(x) = \sqrt{400 - x^3}$.
    a. Find the relative rate of change when $x = 3$. Round your answer to the nearest thousandth.

    b. Find the percentage rate of change when $x = 3$. Round your answer to the nearest tenth of a percent.

Compute elasticity of demand

2. Consider the demand function $q(x) = \frac{100}{(x+2)^2}$. Calculate the elasticity of demand when $x = 2$.

Interpret elasticity of demand

3. Determine whether the demand in Problem (2) is elastic, inelastic or at a maximum. Explain what this term means in your own words.

- $E = \frac{q'(x)}{q(x)}$
- Inelastic: $E < 1$
- Elastic: $E > 1$

ANSWER KEY

1. -0.036, -3.6%
2. $E = -0.5$
3. Inelastic. An increase in price will bring an increase in revenue.