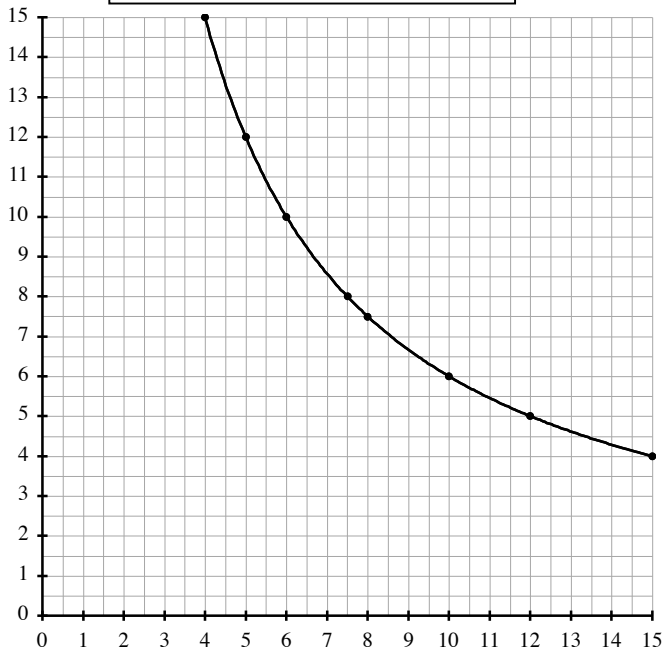
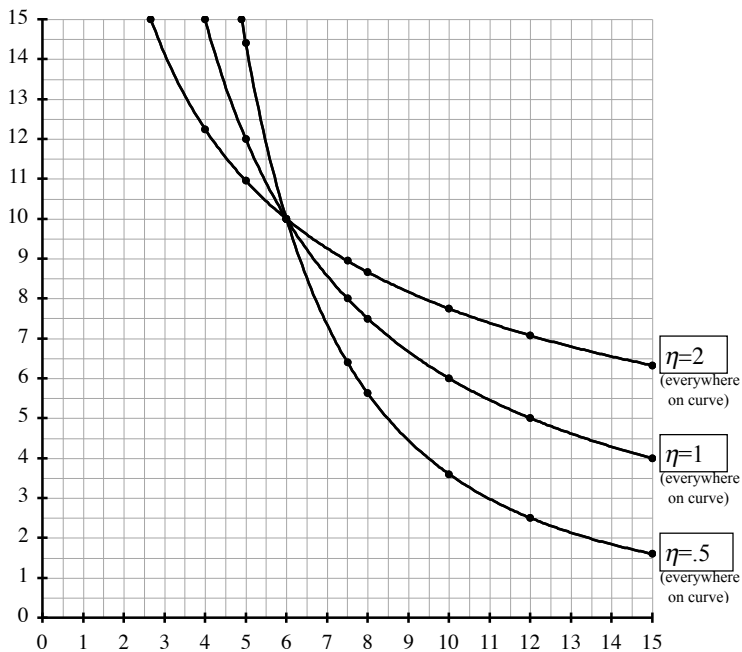


Constant Elasticity Demand Curves



P	Q	TR
\$15	4	\$60
12	5	60
10	6	60
8	7.5	60
7.5	8	60
6	10	60
5	12	60
4	15	60



How to Plot Constant Elasticity Demand Curves

The equation for any constant elasticity demand curve is:

$$Q = \left(\frac{A}{p^\eta} \right)$$

To use this equation, follow these three steps:

- 1) Decide on values for η , an initial price (p_0) and an initial quantity (Q_0).
- 2) Calculate A by the following rule: $A = p_0^\eta Q_0$
- 3) Substitute any p into the equation to get the Q on the demand curve.

These steps are especially simple when $\eta = 2$ or $\eta = .5$. For $\eta = .5$, just recall that $p^{-.5} = \sqrt{p}$.

Example ①

Suppose I want to draw a demand curve that has:

- 1) $\eta = 2$ and has $Q = 64$ when $p = 6$. Then
- 2) $A = 6^2 \times 64 = 2304$ and
- 3) If we try $p = 12$ then $Q = \left(\frac{2304}{12^2} \right) = 16$.

Example ②

What would the quantity be in Example ① if $p = 3.2$?

Example ③

Suppose I want to draw a demand curve that has: $\eta = 2$ and initially has $Q = 6$ when $p = 10$.
What is the equation for the demand curve and what is Q when $p = 7$?

Example ④

Suppose I want to draw a demand curve that has: $\eta = .5$ and initially has $Q = 6$ when $p = 10$.
What is the equation for the demand curve and what is Q when $p = 7$?

Example ⑤

Suppose I want to draw a demand curve that has: $\eta = 2$ and initially has $Q = 54$ when $p = 16$.
What is the equation for the demand curve and what is Q when $p = 9$?

Example ⑥

Suppose I want to draw a demand curve that has: $\eta = .5$ and initially has $Q = 54$ when $p = 16$.
What is the equation for the demand curve and what is Q when $p = 9$?

Answers:

$$\textcircled{2} Q = 225 \quad \textcircled{3} Q = \left(\frac{600}{p^2} \right), Q = \left(\frac{600}{7^2} \right) = 12.24 \quad \textcircled{4} Q = \left(\frac{18.97}{\sqrt{p}} \right), Q = \left(\frac{18.97}{\sqrt{7}} \right) = 7.17$$

$$\textcircled{5} Q = \left(\frac{13824}{p^2} \right), Q = \left(\frac{13824}{9^2} \right) = 170.7 \quad \textcircled{6} Q = \left(\frac{216}{\sqrt{p}} \right), Q = \left(\frac{216}{\sqrt{9}} \right) = 72$$