Supply, demand, and equilibrium

Find the market intersection, then distinguish a curve shift from movement along a curve.

1 / Solve the equilibrium

Demand describes the quantities buyers are willing and able to purchase at different prices. Supply describes the quantities sellers offer. Let P be dollars per unit and Q be units per day.

$$Q_d = 100 - 2P, \qquad Q_s = 20 + 2P$$

At equilibrium, quantity demanded equals quantity supplied:

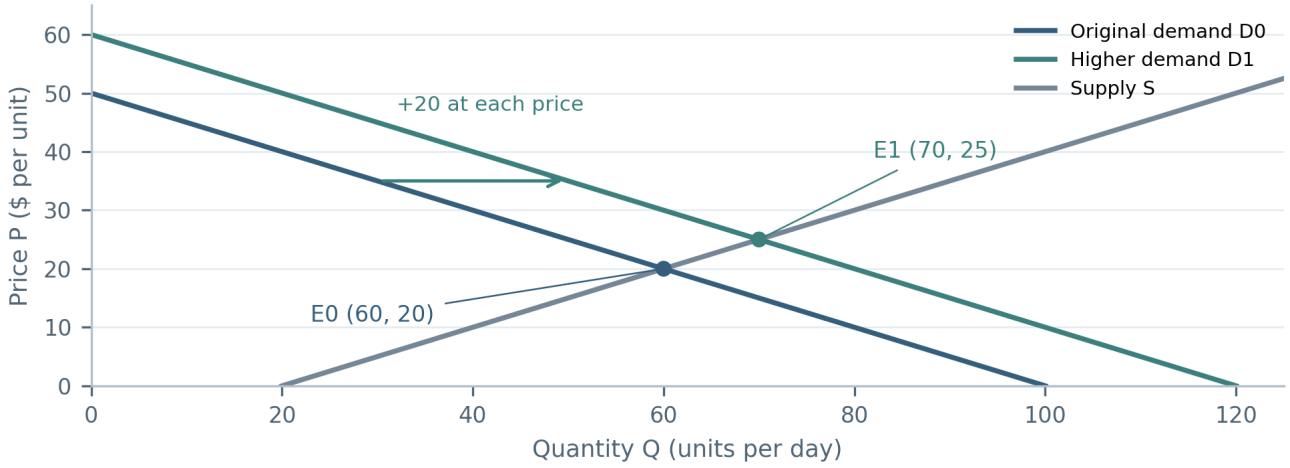
$$100 - 2P = 20 + 2P \quad \Rightarrow \quad P^* = 20, \quad Q^* = 60$$

The market clears at **$20 per unit and 60 units per day**.

2 / Increase demand while holding supply fixed

Suppose stronger preferences add 20 units to quantity demanded at every price. The entire demand curve shifts right:

$$Q_d^{\text{new}} = 120 - 2P \quad \Rightarrow \quad P_1^* = 25, \quad Q_1^* = 70$$



The +20 curve shift is measured at a fixed price. Equilibrium quantity rises by only 10 because equilibrium price also changes.

3 / Identify the initial cause

A change in the good's **own price** changes quantity demanded: movement along a given demand curve. A non-price factor can change **demand**: a shift of the whole curve. Here, demand shifts and the market moves along the unchanged supply curve.

Check: Higher quantity supplied does not by itself prove that supply shifted. Name the initial cause and hold other conditions constant.

Further reading: OpenStax, Principles of Microeconomics 3e, 3.1 - market equilibrium; 3.3 - equilibrium changes.