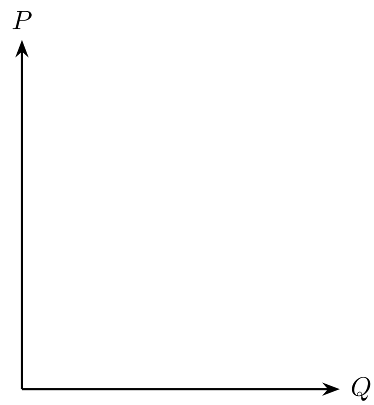
Handout 2: The Market Forces of Supply and Demand

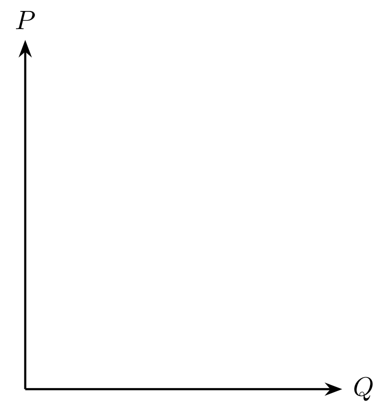
Mankiw Ch 4

Problem 1. Spotify and the demand curve

Spotify sells one subscription at one price in every country it serves. Draw the demand curve for subscriptions. For each event below, say whether it shifts the curve or moves you along it, say which direction, and give the reason in one line.



Subscriptions



Subscriptions

a) Spotify expands to twenty more countries without changing the price.

b) A global recession raises unemployment and lowers incomes everywhere.

c) The price of Apple Music drops.

d) The price of cell phones falls.

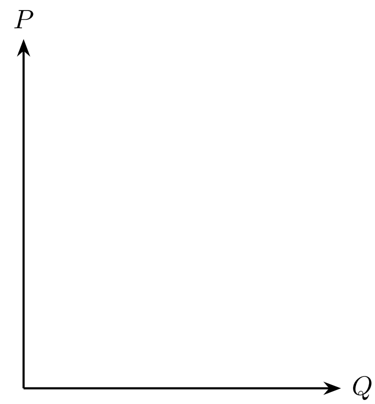
e) Spotify starts promoting local artists from developing countries.

f) Prominent economists warn of a coming recession.

g) Spotify ends its free tier, so new users must pay the subscription price.

Problem 2. Supply of electric cars: shift or movement?

Draw the supply curve for electric cars. For each event, say whether supply shifts, and in which direction, or whether something else happens.



Electric cars

a) The price of lithium, used in the batteries, falls.

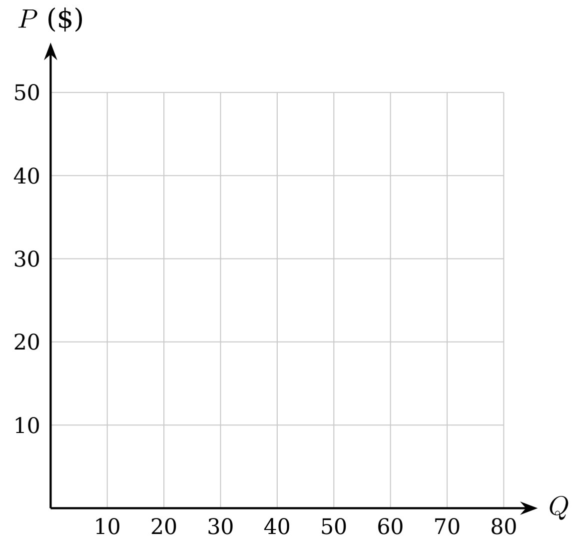
b) The price of electric cars falls.

c) The price of gasoline cars falls.

Problem 3. Equilibrium from a schedule

The table gives the market demand and supply for a good.

P ($)	Q_d	Q_s
0	50	0
10	40	15
20	30	30
30	20	45
40	10	60
50	0	75



a) Plot both curves and find the equilibrium price and quantity.

b) Find the surplus or shortage at $P = 40$, and say what happens next.

c) Find the surplus or shortage at $P = 10$, and say what happens next.

d) Write the two curves as equations.

Problem 4. Equilibrium from equations

Demand and supply for a product are

$$Q_d = 1200 - 50P \qquad\qquad Q_s = 200 + 50P$$

a) Calculate the equilibrium price and quantity.

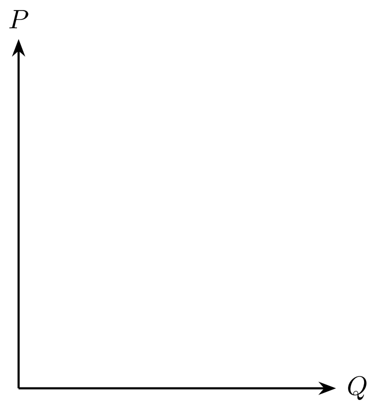
b) Is there a surplus or a shortage at $P = 14$? How large?

c) Buyers' incomes rise and demand becomes $Q_d = 1500 - 50P$. Find the new equilibrium.

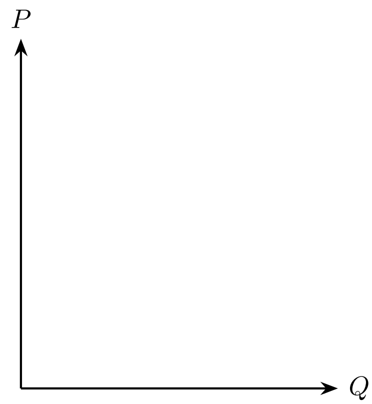
d) Immediately after the shift, the price is still \$10. What does the market look like at that price, and how does it get to the new equilibrium?

Problem 5. The electric car market in equilibrium

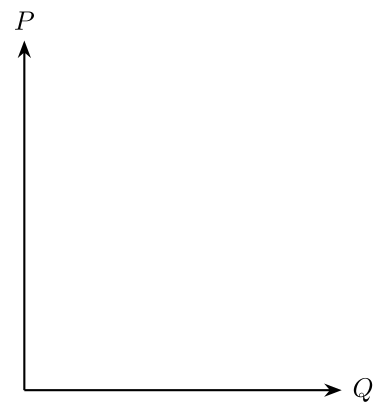
The market for electric cars starts in equilibrium. For each event, use the three steps: which curve shifts, in which direction, and what happens to equilibrium price and quantity.



(a) price of oil rises



(b) better technology



(c) both

a) The price of oil rises.

b) New technology reduces the cost of engine design for electric cars.

c) The oil shock and the technology shock happen at the same time.

Problem 6. Three scenarios

Use the same three steps. Name the shifter, not just the direction.

a) A hurricane destroys much of the Hudson Valley apple crop. What happens in the market for apples?

b) A report finds dangerous mercury levels in fish. In the same month, the diesel fuel that fishing boats burn gets cheaper. What happens in the market for fish?

c) Honey and jam are substitutes, and the price of honey rises. What happens in the market for jam? What happens in the market for honey?