

## 1 Graded Questions

Write up your answers and submit a physical copy during discussion on the due date. Please label the following on your graphs: the axes ( $P$  and  $Q$ ), supply and demand ( $S$  and  $D$ ), and the equilibrium point (either labelling the point with  $E$  or using dotted lines to show the price and quantity). This is a good habit, and will be a requirement on the midterms.

1. A classmate has a monthly allowance from her family of \$500 which she spends on bagels and textbooks.
  - (a) Sketch your classmate's PPC with dollars of bagels on the  $x$ -axis and dollars of textbooks on the  $y$ -axis.
  - (b) Suppose that the price of a bagel doubles due to supply chain problems. Sketch the new PPC on your graph.
  - (c) The student decides to save \$100 each month towards paying off her student debt. Explain how this would change the PPC.
  - (d) Is this PPC linear or concave? Why?
2. Consider the market for vacation home rentals in the Outer Banks, North Carolina.
  - (a) Suppose that the equilibrium price for a week-long rental is \$1,000. Sketch possible supply and demand curves.
  - (b) Part of the Outer Banks slides into the ocean, destroying several vacation homes and lowering supply. Illustrate this event on the graph.
  - (c) Suppose that the rental price initially stays at \$1,000 after the shock from (b). Is there a shortage or surplus? Identify the magnitude of the shortage/surplus on the graph.
  - (d) Eventually, the market reaches a new equilibrium. What is the ultimate effect of the supply shock on the price and quantity of vacation rentals?
3. Faster rendering algorithms have led to dramatic improvements in the supply of virtual reality (VR) games.
  - (a) Prior to these improvements, there is no market for VR games. Draw a graph of supply and demand curves which represent a nonexistent market (Hint: your curves will not intersect). Use the graph to illustrate the result of a positive supply shock on the equilibrium price and quantity of VR games.
  - (b) Suppose that desktop computers are complements for VR games. Use another graph to show how changes in the price of VR games is likely to affect the desktop market.
  - (c) Repeat part (b) with a substitute to VR games.
  - (d) An industry analyst asks you to help determine whether VR games are normal or inferior goods. What information will you need to help the analyst?

## 2 Extra Practice (ungraded)

1. A school chooses whether to penalize parents who pick up their children late with a lump sum fee of \$25 or a per-minute fee of \$2.
  - (a) One parent has a total daily income of \$100. Sketch his PPC with dollars on the  $y$ -axis and minutes of childcare on the  $x$ -axis if the school chooses the per-minute fee.
  - (b) What does this PPC look like if the school chooses the lump-sum fee?
2. This question examines the connection between the Law of Demand and market equilibrium.
  - (a) Suppose that demand for a designer perfume violates the Law of Demand over the range of quantities  $[100, 200]$  and that it satisfies the law everywhere else. Sketch a graph of this demand curve.
  - (b) Draw an upward-sloping supply curve that intersects the demand curve three times.
  - (c) What can you say about the equilibrium price and quantity in this market?