Final Exam
Microeconomics for Public Policy I
Fall 2025
December 16, 2025

GWID/Birthdate (**not your name**): _____

Instructions

1. **Write your name on page 14.** Write your GWID or birthdate on all other pages. **Exams without a name on page 14 lose one point.**
2. Answer all questions.
3. The exam has 100 points. Points for each section and points for each question are indicated on the exam.
4. Write legibly. Illegible exams cannot be graded.
5. Do your best to fit all your answers on the front side of the exam. If you need to use the back of a page, indicate that clearly.
6. Label all figures as needed.
7. Make sure you **explain** your answers as needed. When appropriate, explain any assumptions that you make to arrive at your answer. Explanations may yield partial credit.
8. Be concise.
9. The final page is intentionally left blank for extra work. If you do extra work on this page (or in any other non-standard location) that you would like to be counted, you must note it clearly near the question you are answering. Do not use extra paper.
10. You are allowed a dumb calculator and no other aids. Leave everything else in your bag for the duration of the exam.

For marking purposes only

Part A _____

Part B _____

Part C _____

total _____

A. Ripped From the Headlines (20 points, 5 points each)

Read the article from the *Wall Street Journal* at the end of the exam.

1. Name two reasons why Honeycrisp apples are more expensive to produce than other apples.

2. Are the costs you listed in your answer to question 1 fixed or variable costs? Explain why.

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3. Relative to growing other types of apples, does the production of Honeycrisp apples have greater or lesser economies of scale? Explain why.

4. Define marginal revenue. Explain whether producers' marginal revenue for Honeycrisp apples is generally higher or lower than marginal revenue for other types of apples, using evidence from the article.

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B. Short Answer Questions (5 points each. 40 points total)

1. Are consumers better off when firms have market power, or when firms are perfectly competitive? Explain why using the concept of consumer surplus, ideally drawing illustrative graphs.

2. Give two examples of factors that could shift the demand curve for a particular market. For each factor, explain whether the curve shifts inward or outward and why.

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3. Name a firm with market power and describe its source of market power.

4. Suppose that for the 12th unit of production, the firm's marginal revenue exceeds the firm's marginal cost. Should the firm produce the 12th unit? Explain why or why not.

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5. Define a negative externality and give an example, being careful about to whom this is an externality. Explain why your example fits the definition.

6. Suppose Firm A has the production function $Q_A = 3K + 5L$, and that firm B has the production function $Q_B = 5K^3L$. Does Firm A or Firm B, or do both firms have economies of scale? Explain how you reach your conclusion.

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7. Suppose that a perfectly competitive firm has a U-shaped marginal cost curve. Draw this curve and the associated average variable cost curve. Note on your picture for which values of Q the firm will produce and explain why the firm is willing to produce only at these values.

8. Suppose that some firms in a perfectly competitive market charge prices above marginal cost. Explain what you expect to happen to those firms, to the market as a whole, and to prices in the long run.

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C. Medium Answer Questions
(40 points, 4 points each sub-question)

1. Market Power

Suppose that a firm with market power has a constant marginal cost of 50. It faces a market demand of $Q = 300 - 3P$.

(a) What does a firm with market power set equal to marginal cost to choose the profit-maximizing quantity? Write the equation for this equality.

(b) Solve the equation you just wrote to find the market equilibrium quantity. Draw a picture that shows all relevant curves, labels axes and intercepts, and depicts this quantity.

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(c) What is the market equilibrium price? Add this to your picture from part (a).

(d) Define producer and consumer surplus, calculate their value in this case, and note their locations in your figure.

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(e) Is there a deadweight loss? If so, why? And how large is it?

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2. Production

Suppose that a caramel wafer firm's total cost curve is $TC = 10Q^2 + 6Q + 60$, and that the firm's marginal cost curve is $MC = 20Q + 6$.

(a) Define fixed cost, and find fixed cost for this firm, using the information in the total cost curve.

(b) Define average variable cost in words. Calculate average variable using the information given in the problem.

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(c) Suppose that this is a perfectly competitive firm, and the market price is \$106. How much does the firm produce?

(d) Now that the firm knows how much it is going to produce (see part (c); if you didn't find an answer for (c), assume that firm has decided to produce 20 units), it needs to decide how much capital and how much labor to use. Suppose that the production function is $Q = \frac{1}{2}KL$, that the marginal product of capital is $MP_K = \frac{1}{2}L$, and the marginal product of labor is $MP_L = \frac{1}{2}K$. The firm faces a wage rate of 12.50 and a capital rental rate of 5. What is the firm's optimal choice for the quantity of labor? And the quantity of capital?

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(e) Again, assume that the market price is \$106. At this price, what is the minimum quantity the firm is willing to produce?

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https://www.wsj.com/lifestyle/honeycrisp-apples-farmers-grow-fuji-gala-8914927a

LIFESTYLE

America's Favorite Apple Is a Farmer's Nightmare

Honeycrisp's iconic crunch transformed the industry, but for the people who grow the finicky fruit, she's 'an absolute diva'

By Amira McKee Follow

Oct. 15, 2025 5:30 am ET



The Honeycrisp dominates the American apple market. KAROLINA WOJTASIK/BLOOMBERG NEWS

It was a sound before it was a taste: a sharp, explosive crunch. When David Bedford took his first bite of the mystery apple in 1988, he knew he'd found gold.

That syrupy-sweet and shockingly crisp fruit came from an unremarkable sapling that Bedford, then a graduate student, had rescued from the discard pile of a University of Minnesota breeding program.

But the apple had problems. It was too big, too fragile and a magnet for disease. The farmers who sampled it were quick to dismiss the finicky tree.

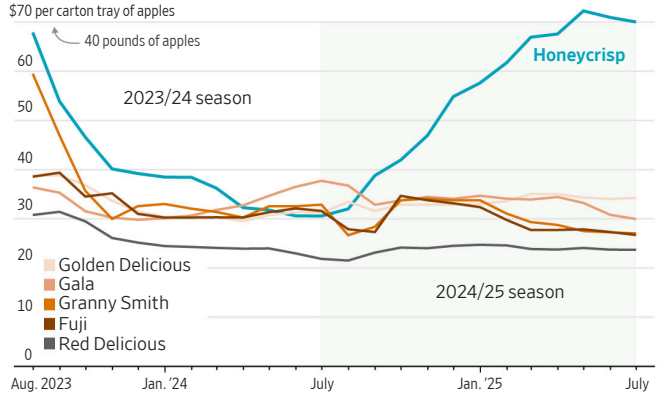
"They said 'Oh, it's a nightmare, we'll never grow that," Bedford recalled with a chuckle.

Thirty years later, that apple—now named Honeycrisp—dominates the American market.

Consumers, bored by the softer, blander Red Delicious variety that had ruled grocery aisles for decades, discovered an apple that was sweet and so texturally satisfying

they never looked back. Buyers could even stomach a premium price, often three times the cost of other varieties.

Domestic apple grower prices by variety



Source: U.S. Apple Association
Amira McKee/WSJ

But if consumers are charmed by the supermarket star, the farmers who grow it, especially in America's apple-growing capital of Washington state, often wish they never met it.

"She's a diva, an absolute diva," fourth-generation Washington apple farmer Kait Thornton said of the Honeycrisp.

Thornton's family has been farming in the same valley 20 minutes south of the Canadian border for nearly a century, and their yearly Honeycrisp crop is a painstaking ordeal. The same qualities that make the variety so delicious leave farmers griping.



Kait and Geoff Thornton run a family farm in Washington state. KAIT THORNTON

Its thin skin is easily punctured by its own stem, which means workers must hand-clip the fruit from the tree, cutting productivity in half. The tree tends to produce more apples than it can handle, so growers must thin out the fruit. The Thorntons spray the trees frequently to treat an endemic calcium deficiency.

And to coax the apple into developing its signature red-pink hue, workers lay out sheets of reflective material by hand. Even a healthy apple is susceptible to bitter pit, a disorder that marks the skin with black splotches and ruins the fruit's flesh.

That, Thornton said, is just the work required to get it off the tree. The fall apple harvest supplies the market for the entire year, so shelf-life is crucial. The apple's signature foamy texture means it is an easy bruiser and doesn't store as well as other varieties. If in January, nine out of 10 Honeycrisps survived storage, a farmer might only get seven out of 10 by the summer.

While farmers might lament growing Honeycrisps, production is on the rise. Honeycrisps, known by some farmers as "moneycrisps," can fetch handsome paydays.

"That's where the consumer taste profile is going," said Chris Gerlach, vice president of insights and analytics for the U.S. Apple Association. "They want these fantastically flavorful apples."

This year is expected to bring a bumper Honeycrisp crop, but farmers aren't celebrating. A big harvest can send prices plummeting broadly as retailers discount other varieties like Gala or Fuji to compete with cheaper Honeycrisps. Apple growers

say they're at the mercy of the volatile Honeycrisp, unsure from season to season how it's going to affect the price of their other varieties.

It's no surprise that the industry has been desperate to dump its high-maintenance lover for almost as long as they've been together. Fruit breeders across the country have been racing to create crispier, more flavorful apples that will capture consumer loyalty like the Honeycrisp—but are easier to grow.



Workers pick Honeycrisp apples during a harvest on a farm in Washington state. EMREE WEAVER/BLOOMBERG NEWS

Kate Evans, an apple breeder at Washington State University, developed the Cosmic Crisp, a variety she's worked on for two decades. The variety is a love child of the Honeycrisp and a more robust Enterprise apple, producing an eating experience that is reminiscent of its parent but slightly more tart and dense.

For farmers, the difference is drastic. The Cosmic Crisp is more resilient, stays fresh longer in storage and its U.S. production is limited to Washington state.

Washington growers bet big on the new variety, launching it with a massive marketing campaign, deep retailer discounts and aggressive consumer outreach. As of this year, production of the Cosmic Crisp has grown by nearly 800% and it cracked the top 10 bestselling varieties in the country.

Some farmers see the Cosmic Crisp as a newcomer poised to overthrow the Honeycrisp. Evans isn't so sure.

"There are very, very, very strong Honeycrisp fans," she said of consumers. "I don't think they'll ever waver from that."

Few produce items inspire the kind of cult following and fierce loyalties that surround apple varieties. When Thornton took to TikTok to complain about the trials of harvesting Honeycrisp after an especially grueling day this fall, the video got 1.8 million views and more than 4,000 comments.

"One commenter was like 'I like Honeycrisp...that makes sense why they're my favorite apple because I'm also a diva,'" she said.

Write to Amira McKee at amira.mckee@wsj.com

Appeared in the October 16, 2025, print edition as 'America's Favorite Apple Is a Farmer's Nightmare'.

Videos