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Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total costs faced by Allura's Little Robotics Company for different quantities of Good S sold.

Quantity	*Total Cost*
0	$100
1	$136
2	$180
3	$228
4	$280
5	$336
6	$396
7	$460
8	$528
9	$600
10	$680

Allura's Little Robotics Company sells Good S in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $62 per unit.

(a) Calculate the average fixed cost of producing 2 units. Show your work.

(b) Identify the profit-maximizing quantity. Explain using marginal analysis.

(c) Calculate the economic profit at the profit-maximizing quantity you identified in part (b). Show your work.

(d) Based on your answer to part (c), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (c), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good S is -0.5, and the cross-price elasticity of demand for toy robots with respect to the price of Good S is 0.8. Based on your answer to part (e), what will happen to the demand for toy robots? Explain.

(g) Now assume that the market in which Allura's Little Robotics Company operates is in long-run equilibrium at a price of $65 per unit.
(i) Suppose shipping costs per order for Allura's Little Robotics Company decrease. Will the profit-maximizing quantity

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of Good S for Allura's Little Robotics Company increase, decrease, or stay the same in the short run? Explain.
(ii) Instead suppose the government imposes a price ceiling of $60 on the market for Good S. Will total economic surplus in the market for Good S increase, decrease, or stay the same in the short run as a result of the price ceiling? Explain.

1. Respond to all parts of the question.

Assume that in a perfectly competitive market, a firm's costs and revenues are

marginal cost = average variable cost at $20

marginal cost = average total cost at $30

marginal cost = average revenue at $25

a. How will this firm determine the profit maximizing level of output?

b. What price will this firm charge? Explain how the firm determined this price.

c. Should this firm produce in the short run? Why or why not?

d. Will this firm earn a profit or incur a loss? Why?

2. Respond to all parts of the question.

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In answering the question, you should emphasize the line of reasoning that generated your results; it is not enough to list the results of your analysis. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes.

Bestmilk, a typical profit-maximizing dairy firm, is operating in a constant-cost, perfectly competitive industry that is in long-run equilibrium.

a. *Draw correctly labeled side-by*-side graphs for the dairy market and for Bestmilk and show each of the following.

    i. Price and output for the industry

    ii. Price and output for Bestmilk

b. Assume that milk is a normal good and that consumer income falls. Assume that Bestmilk continues to produce. On your graphs in part (a), show the effect of the decrease in income on each of the following in the short run.

    i. Price and output for the industry

    ii. Price and output for Bestmilk

    iii. Area of loss or profit for Bestmilk

c. Following the decrease in consumer income, what must be true for Bestmilk to continue to produce in the short run?

d. Assume that the industry adjusts to a new long-run equilibrium. Compare the following between the initial and the new long-run equilibrium.

    i. Price in the industry

    ii. Output of a typical firm

    iii. The number of firms in the dairy industry

3. Respond to all parts of the question.

j

Brody's firm produces trumpets in a perfectly competitive market. The table below shows Brody's total variable cost. He has a fixed cost of $240, and the price per trumpet is $60.

Quantity	Total Variable Cost
6	$120
7	$145
8	$165
9	$220
10	$290
11	$390

a. Calculate the average total cost of producing 6 trumpets. Show your work.

b. Calculate the marginal cost of producing the 11th trumpet.

c. What is Brody's profit-maximizing quantity? Use marginal analysis to explain your answer.

d. At the profit-maximizing quantity you determined in part (c), calculate Brody's profit or loss. Show your work.

e. Brody also produces saxophones at a loss in a perfectly competitive market. Draw a correctly labeled graph for Brody's firm showing the following at a market price of $200.

   i. Brody's profit-maximizing quantity of saxophones

   ii. Brody's loss, completely shaded

4. Respond to all parts of the question.

j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total costs faced by Dave's General Store for different quantities of Good X sold.

Quantity	Total Cost
0	\$100
1	\$110
2	\$140
3	\$190
4	\$290
5	\$440
6	\$640
7	\$900
8	\$1,230
9	\$1,640
10	\$2,140

Dave's General Store sells Good X in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is \$120 per unit.

(a) Calculate the average fixed cost of producing 5 units. Show your work.

(b) Identify the profit-maximizing quantity. Explain using marginal analysis.

(c) Calculate the economic profit at the profit-maximizing quantity you identified in part (b). Show your work.

(d) Based on your answer to part (c), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (c), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good X is 2.5, and the cross-price elasticity of demand for shoes with respect to the price of Good X is -0.4 . Based on your answer to part (e), what will happen to the demand for shoes? Explain.

(g) Now assume that the market in which Dave's General Store operates is in long-run equilibrium.
(i) Suppose the rent paid by Dave's General Store decreases. Will Dave's General Store's profit-maximizing quantity of Good X increase, decrease, or stay the same in the short run? Explain.
(ii) Instead suppose Dave's General Store hires labor in a perfectly competitive market and the market wage increases.

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Will Dave's General Store's profit-maximizing quantity of Good X increase, decrease, or stay the same in the short run? Explain.

5. Respond to all parts of the question.

Assume that a firm uses capital as a fixed factor of production and uses labor as a variable factor. The marginal product of labor at first increases and then decreases with the amount of labor.

a. Using a correctly labeled graph, draw and identify the firm's average total cost curve (ATC), average variable cost curve (AVC), and marginal cost curve (MC).

b. Given your graph in part (a), answer each of the following.

   i. Why is the MC shaped as it is?

   ii. What does the difference between the AVC and the ATC represent?

c. Define economies of scale.

d. Draw a long-run average total cost curve that has a region of economies of scale followed by a region of diseconomies of scale, as output increases.

6. Respond to all parts of the question.

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j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total variable costs faced by Emily's Eye Care Store for different quantities of Good M sold.

Quantity	Total Variable Cost
1	$20
2	$25
3	$35
4	$50
5	$70
6	$95
7	$125
8	$160
9	$200
10	$245

Emily's Eye Care Store sells Good M in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $33 per unit, and the total fixed cost is $30.

(a) Identify the profit-maximizing quantity. Explain using marginal analysis.

(b) Calculate the economic profit at the profit-maximizing quantity you identified in part (a). Show your work.

(c) Calculate the average fixed cost of producing 6 units. Show your work.

(d) Based on your answer to part (b), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (b), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good M is 1.4, and the cross-price elasticity of demand for eyeglasses with respect to the price of Good M is -0.75. Based on your answer to part (e), what will happen to the demand for eyeglasses? Explain.

(g) Now assume that the market in which Emily's Eye Care Store operates is in long-run equilibrium at a price of $30 per unit.
(i) Suppose annual property taxes for Emily's Eye Care Store increase by $2,000. Will the profit-maximizing quantity of Good M for Emily's Eye Care Store increase, decrease, or stay the same in the short run? Explain.

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(ii) Instead suppose the government imposes a price floor at $35 on the market for Good M. Will deadweight loss in the market for Good M increase, decrease, or stay the same in the short run as a result of the price floor? Explain.

7. Respond to all parts of the question.

j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total costs faced by Faizah's Manufacturing Firm for different quantities of Good G sold.

Quantity	Total Cost
0	\$64
1	\$79
2	\$98
3	\$120
4	\$145
5	\$171
6	\$198
7	\$228
8	\$262
9	\$305
10	\$353

Faizah's Manufacturing Firm sells Good G in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $\$32$ per unit.

(a) Calculate the average fixed cost of producing 8 units. Show your work.

(b) Identify the profit-maximizing quantity. Explain using marginal analysis.

(c) Calculate the economic profit at the profit-maximizing quantity you identified in part (b). Show your work.

(d) Based on your answer to part (c), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (c), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good G is -3, and the cross-price elasticity of demand for gizmos with respect to the price of Good G is 0.1. Based on your answer to part (e), what will happen to the demand for gizmos? Explain.

(g) Now assume that the market in which Faizah's Manufacturing Firm operates is in long-run equilibrium at a price of $35 per unit.
(i) Suppose the government imposes a price floor at $30 per unit on the market for Good G. Will consumer surplus in the market for Good G increase, decrease, or stay the same in the short run as a result of the price floor? Explain.

j

(ii) Suppose instead the cost of energy, a variable cost for Faizah's Manufacturing Firm, decreases. Will the profit-maximizing quantity of Good G for Faizah's Manufacturing Firm increase, decrease, or stay the same in the short run? Explain.

8. Respond to all parts of the question.

j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

*The table below shows the total costs fa*ced by Hank's Clothing Emporium for different quantities of Good A sold.

Quantity	Total Cost
0	$80
1	$130
2	$185
3	$255
4	$330
5	$410
6	$510
7	$640
8	$800
9	$995
10	$1,230

Hank's Clothing Emporium sells Good A in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $60 per unit.

(a) Calculate the average fixed cost of producing 5 units. Show your work.

(b) Identify the profit-maximizing quantity. Explain using marginal analysis.

(c) Calculate the economic profit at the profit-maximizing quantity you identified in part (b). Show your work.

(d) Based on your answer to part (c), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (c), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good A is -2 , and the cross-price elasticity of demand for khaki pants with respect to the price of Good A is 0.8. Based on your answer to part (e), what will happen to the demand for khaki pants? Explain.

(g) Now assume that the market in which Hank's Clothing Emporium operates is in long-run equilibrium.
(i) Suppose the rent paid by Hank's Clothing Emporium increases. Will Hank's Clothing Emporium's profit-maximizing quantity of Good A increase, decrease, or stay the same in the short run? Explain.

j

(ii) Instead suppose Hank's Clothing Emporium hires labor in a perfectly competitive market and the market wage decreases. Will Hank's Clothing Emporium's profit-maximizing quantity of Good A increase, decrease, or stay the same in the short run? Explain.

9. Respond to all parts of the question.

j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total variable costs faced by Julia's Accessories Store for different quantities of Good E sold.

Quantity	Total Variable Cost
1	\$35
2	\$73
3	\$113
4	\$154
5	\$198
6	\$248
7	\$303
8	\$360
9	\$421
10	\$498

Julia's Accessories Store sells Good E in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $\$62$ per unit, and the total fixed cost is $\$152$.

(a) Identify the profit-maximizing quantity. Explain using marginal analysis.

(b) Calculate the economic profit at the profit-maximizing quantity you identified in part (a). Show your work.

(c) Calculate the average fixed cost of producing 8 units. Show your work.

(d) Based on your answer to part (b), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (b), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good E is -1.2, and the cross-price elasticity of demand for bracelets with respect to the price of Good E is 0.6. Based on your answer to part (e), what will happen to the demand for bracelets? Explain.

(g) Now assume that the market in which Julia's Accessories Store operates is in long-run equilibrium.
(i) Suppose the market demand for Good E decreases. Will the profit-maximizing quantity of Good E for Julia's Accessories Store increase, decrease, or stay the same in the short run? Explain.
(ii) Suppose instead the wages that Julia's Accessories Store pays its workers increase. Will the profit-maximizing

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quantity of Good E for Julia's Accessories Store increase, decrease, or stay the same in the short run? Explain.

10. Respond to all parts of the question.

j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total variable costs faced by Karen's Kaleidoscope Store for different quantities of Good N sold.

Quantity	Total Variable Cost
1	$30
2	$70
3	$120
4	$180
5	$250
6	$340
7	$435
8	$535
9	$645
10	$760

Karen's Kaleidoscope Store sells Good N in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $80 per unit, and the total fixed cost is $300.

(a) Identify the profit-maximizing quantity. Explain using marginal analysis.

(b) Calculate the economic profit at the profit-maximizing quantity you identified in part (a). Show your work.

(c) Calculate the average fixed cost of producing 3 units. Show your work.

(d) Based on your answer to part (b), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (b), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good N is -1.8, and the cross-price elasticity of demand for kaleidoscopes with respect to the price of Good N is -0.5 .Based on your answer to part (e), what will happen to the demand for kaleidoscopes? Explain.

(g) Now assume that the market in which Karen's Kaleidoscope Store operates is in long-run equilibrium at a price of $85 per unit.
(i) Suppose annual property taxes for Karen's Kaleidoscope Store decrease by $2,500. Will the profit-maximizing

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quantity of Good N for Karen's Kaleidoscope Store increase, decrease, or stay the same in the short run? Explain.
(ii) Instead suppose the government imposes a price floor at $75 on the market for Good N. Will deadweight loss in the market for Good N increase, decrease, or stay the same in the short run as a result of the price floor? Explain.

11. Respond to all parts of the question.

j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total costs faced by Kiyoshi's Clothing Store for different quantities of Good F sold.

Quantity	Total Cost
0	$8
1	$18
2	$32
3	$48
4	$72
5	$104
6	$144
7	$192
8	$248
9	$312
10	$384

Kiyoshi's Clothing Store sells Good F in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $60 per unit.

(a) Calculate the average fixed cost of producing 4 units. Show your work.

(b) Identify the profit-maximizing quantity. Explain using marginal analysis.

(c) Calculate the economic profit at the profit-maximizing quantity you identified in part (b). Show your work.

(d) Based on your answer to part (c), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (c), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good F is 3, and the cross-price elasticity of demand for gloves with respect to the price of Good F is 0.5. Based on your answer to part (e), what will happen to the demand for gloves? Explain.

(g) Now assume that the market in which Kiyoshi's Clothing Store operates is in long-run equilibrium at a price of $50 per unit.
(i) Suppose the government imposes a price floor at $55 per unit on the market for Good F. Will consumer surplus in the market for Good F increase, decrease, or stay the same in the short run as a result of the price floor? Explain.

j

(ii) Suppose instead the cost of energy, a variable cost for Kiyoshi's Clothing Store, increases. Will the profit-maximizing quantity of Good F for Kiyoshi's Clothing Store increase, decrease, or stay the same in the short run? Explain.

12. Respond to all parts of the question.

j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total costs faced by Lynda's Office Supply Store for different quantities of Good P sold.

Quantity	Total Cost
0	$12
1	$22
2	$52
3	$102
4	$172
5	$252
6	$342
7	$442
8	$552
9	$672
10	$802

Lynda's Office Supply Store sells Good P in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $45 per unit.

(a) Calculate the average fixed cost of producing 4 units. Show your work.

(b) Identify the profit-maximizing quantity. Explain using marginal analysis.

(c) Calculate the economic profit at the profit-maximizing quantity you identified in part (b). Show your work.

(d) Based on your answer to part (c), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (c), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good P is 1.8, and the cross-price elasticity of demand for chair mats with respect to the price of Good P is 0.9. Based on your answer to part (e), what will happen to the demand for chair mats? Explain.

(g) Now assume that the market in which Lynda's Office Supply Store operates is in long-run equilibrium at a price of $40 per unit.
(i) Suppose shipping costs per order for Lynda's Office Supply Store increase. Will the profit-maximizing quantity of Good P for Lynda's Office Supply Store increase, decrease, or stay the same in the short run? Explain.

j

(ii) Instead suppose the government imposes a price ceiling of $50 on the market for Good P. Will total economic surplus in the market for Good P increase, decrease, or stay the same in the short run as a result of the price ceiling? Explain.

13. Respond to all parts of the question.

Assume that pencils are manufactured in a perfectly competitive market that is in long-run equilibrium.

a. Draw correctly labeled side-by-side graphs for the pencil market and for a representative firm and show each of the following.

   i. The market price and quantity, labeled P_M and Q_M, respectively

   ii. The firm's profit-maximizing price and quantity, labeled P_F and Q_F, respectively

b. What is the relationship between P_M and P_F? Explain.

c. Rent on the factory building is an important fixed cost in the production of pencils, and the industry experiences significant increases in rent.

   i. What will happen to the firm's profit-maximizing quantity in the short run? Explain.

   ii. On your graph in part (a), show the impact of the rent increase and completely shade the area representing the firm's profit or loss in the short run.

d. As a result of the rent increase, what will happen to each of the following in the long run?

   I. The number of firms in the market. Explain.

   II. The market equilibrium quantity relative to Q_M and the market equilibrium price relative to PM. Explain.

14. Respond to all parts of the question.

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j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

A firm's short-run production function shows the relationship between the firm's input and output. Assume the firm uses one variable input, labor, and one fixed input, capital. The following table shows short-run production function for a firm that produces widgets.

Quantity of Labor	Total Product
0	0
1	6
2	14
3	24
4	32
5	39
6	42

(a) Calculate the marginal product of the sixth worker. Show your work.

(b) Does the production function exhibit diminishing returns to labor? Explain.

(c) When marginal product is falling, what happens to marginal cost?

(d) On a single correctly labeled graph, draw the firm's short-run average total cost curve (ATC), average variable cost curve (AVC), and marginal cost curve (MC).

15. Respond to all parts of the question.

j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

Assume that Jasmine is a typical firm that produces and sells T-shirts in a perfectly competitive constant-cost industry. The market is currently in long-run equilibrium. The market price is $5, and Jasmine's marginal cost at each level of output is listed in the table below.

Quantity of Output	Marginal Cost
0	0
1	2
2	3
3	4
4	5
5	6
6	7

(a) What is Jasmine's profit-maximizing quantity of output? Explain.

(b) Draw a correctly labeled graph for Jasmine, and show Jasmine's total revenue at the profit-maximizing quantity, shaded completely.

(c) Now assume consumer demand for T-shirts increases. What will happen to the number of firms in the market in the long run? Explain.

16. Respond to all parts of the question.

j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

*The table below shows the total variable co*sts faced by Raskin's Clothing Store for different quantities of Good D sold.

Quantity	Total Variable Cost
1	$50
2	$105
3	$161
4	$218
5	$276
6	$335
7	$410
8	$540
9	$695
10	$875

Raskin's Clothing Store sells Good D in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $150 per unit, and the total fixed cost is $85.

(a) Identify the profit-maximizing quantity. Explain using marginal analysis.

(b) Calculate the economic profit at the profit-maximizing quantity you identified in part (a). Show your work.

(c) Calculate the average fixed cost of producing 10 units. Show your work.

(d) Based on your answer to part (b), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (b), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good D is 1.2, and the cross-price elasticity of demand for dresses with respect to the price of Good D is 0.2. Based on your answer to part (e), what will happen to the demand for dresses? Explain.

(g) Now assume that the market in which Raskin's Clothing Store operates is in long-run equilibrium.
(i) Suppose the market demand for Good D increases. Will the profit-maximizing quantity of Good D for Raskin's Clothing Store increase, decrease, or stay the same in the short run? Explain.
(ii) Suppose instead the wages that Raskin's Clothing Store pays its workers decrease. Will the profit-maximizing quantity of Good D for Raskin's Clothing Store increase, decrease, or stay the same in the short run? Explain.

j

17. Respond to all parts of the question.

j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total variable costs faced by Saif's General Store for different quantities of Good C sold.

Quantity	Total Variable Cost
1	\$50
2	\$103
3	\$165
4	\$232
5	\$310
6	\$393
7	\$481
8	\$581
9	\$690
10	\$810

Saif's General Store sells Good C in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $\$90$ per unit, and the total fixed cost is $\$275$.

(a) Identify the profit-maximizing quantity. Explain using marginal analysis.

(b) Calculate the economic profit at the profit-maximizing quantity you identified in part (a). Show your work.

(c) Calculate the average fixed cost of producing 5 units. Show your work.

(d) Based on your answer to part (b), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (b), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good C is -1.5, and the cross-price elasticity of demand for hats with respect to the price of Good C is -0.6. Based on your answer to part (e), what will happen to the demand for hats? Explain.

(g) Now assume that the market in which Saif's General Store operates is in long-run equilibrium.
(i) Suppose the market demand for Good C decreases. Will the profit-maximizing quantity of Good C for Saif's General Store increase, decrease, or stay the same in the short run? Explain.
(ii) Suppose instead the wages that Saif's General Store pays its workers increase. Will the profit-maximizing quantity of Good C for Saif's General Store increase, decrease, or stay the same in the short run? Explain.

j

18. Respond to all parts of the question.

j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total costs faced by Sarah's Tool Store for different quantities of Good J sold.

Quantity	Total Cost
0	$110
1	$145
2	$175
3	$200
4	$220
5	$245
6	$275
7	$310
8	$350
9	$395
10	$445

Sarah's Tool Store sells Good J in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $42 per unit.

(a) Calculate the average fixed cost of producing 5 units. Show your work.

(b) Identify the profit-maximizing quantity. Explain using marginal analysis.

(c) Calculate the economic profit at the profit-maximizing quantity you identified in part (b). Show your work.

(d) Based on your answer to part (c), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (c), will the market price increase, decrease, or stay the same in the long run? Explain.

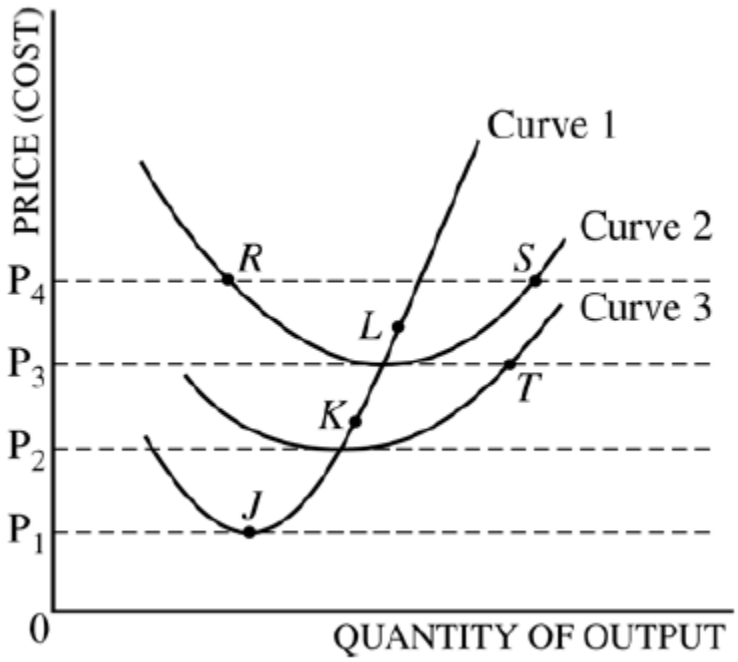
(f) The income elasticity of demand for Good J is -1.4, and the cross-price elasticity of demand for widgets with respect to the price of Good J is -0.25. Based on your answer to part (e), what will happen to the demand for widgets? Explain.

(g) Now assume that the market in which Sarah's Tool Store operates is in long-run equilibrium at a price of $45 per unit.
(i) Suppose the government imposes a price floor at $40 per unit on the market for Good J. Will consumer surplus in the market for Good J increase, decrease, or stay the same in the short run as a result of the price floor? Explain.
(ii) Suppose instead the cost of energy, a variable cost for Sarah's Tool Store, decreases. Will the profit-maximizing

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quantity of Good J for Sarah's Tool Store increase, decrease, or stay the same in the short run? Explain.

19. Respond to all parts of the question.



The graph above shows the short-run cost structure of a firm in a perfectly competitive industry.

a. Identify the cost curves that are denoted by each of the following labels.
    i. Curve 1
    ii. Curve 2
    iii. Curve 3

b. Explain why curve 1 does each of the following as output increases.
    i. Initially decreases
    ii. Finally increases

c. What measure of cost is represented by the vertical distance between curve 2 and curve 3 ?

d. Explain why the vertical distance between curve 2 and curve 3 decreases as output increases.

e. Using the letters on the graph, identify two points on the firm's short-run supply curve.

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20. Respond to all parts of the question.

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Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total costs faced by Sophia's Lighting Store for different quantities of Good H sold.

Quantity	Total Cost
0	$50
1	$90
2	$110
3	$115
4	$140
5	$185
6	$250
7	$335
8	$440
9	$565
10	$710

Sophia's Lighting Store sells Good H in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $140 per unit.

(a) Calculate the average fixed cost of producing 2 units. Show your work.

(b) Identify the profit-maximizing quantity. Explain using marginal analysis.

(c) Calculate the economic profit at the profit-maximizing quantity you identified in part (b). Show your work.

(d) Based on your answer to part (c), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (c), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good H is 1.3, and the cross-price elasticity of demand for desk lamps with respect to the price of Good H is -0.9. Based on your answer to part (e), what will happen to the demand for desk lamps? Explain.

(g) Now assume that the market in which Sophia's Lighting Store operates is in long-run equilibrium at a price of $130 per unit.
(i) Suppose the government imposes a price floor at $150 per unit on the market for Good H. Will consumer surplus in

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the market for Good H increase, decrease, or stay the same in the short run as a result of the price floor? Explain.
(ii) Suppose instead the cost of energy, a variable cost for Sophia's Lighting Store, increases. Will the profit-maximizing quantity of Good H for Sophia's Lighting Store increase, decrease, or stay the same in the short run? Explain.

21. Respond to all parts of the question.

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Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total costs faced by Surisitee's Sporting Goods Store for different quantities of Good Y sold.

Quantity	Total Cost
0	\$85
1	\$105
2	\$130
3	\$165
4	\$210
5	\$290
6	\$410
7	\$580
8	\$810
9	\$1,110
10	\$1,490

Surisitee's Sporting Goods Store sells Good Y in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is \$40 per unit.

(a) Calculate the average fixed cost of producing 2 units. Show your work.

(b) Identify the profit-maximizing quantity. Explain using marginal analysis.

(c) Calculate the economic profit at the profit-maximizing quantity you identified in part (b). Show your work.

(d) Based on your answer to part (c), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (c), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good Y is -2.5, and the cross-price elasticity of demand for basketballs with respect to the price of Good Y is -0.8. Based on your answer to part (e), what will happen to the demand for basketballs? Explain.

(g) Now assume that the market in which Surisitee's Sporting Goods Store operates is in long-run equilibrium.
(i) Suppose the rent paid by Surisitee's Sporting Goods Store increases. Will Surisitee's Sporting Goods Store's profit-maximizing quantity of Good Y increase, decrease, or stay the same in the short run? Explain.

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(ii) Instead suppose Surisitee's Sporting Goods Store hires labor in a perfectly competitive market and the market wage decreases. Will Surisitee's Sporting Goods Store's profit-maximizing quantity of Good Y increase, decrease, or stay the same in the short run? Explain.

22. Respond to all parts of the question.

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Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total variable costs faced by Steve's Home Appliances Store for different quantities of Good L sold.

Quantity	Total Variable Cost
1	$55
2	$105
3	$152
4	$205
5	$270
6	$345
7	$428
8	$525
9	$630
10	$745

Steve's Home Appliances Store sells Good L in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $80 per unit, and the total fixed cost is $145.

(a) Identify the profit-maximizing quantity. Explain using marginal analysis.

(b) Calculate the economic profit at the profit-maximizing quantity you identified in part (a). Show your work.

(c) Calculate the average fixed cost of producing 5 units. Show your work.

(d) Based on your answer to part (b), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (b), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good L is -0.8, and the cross-price elasticity of demand for coffee machines with respect to the price of Good L is 0.25. Based on your answer to part (e), what will happen to the demand for coffee machines? Explain.

(g) Now assume that the market in which Steve's Home Appliances Store operates is in long-run equilibrium at a price of $90 per unit.
(i) Suppose annual property taxes for Steve's Home Appliances Store decrease by $7,000. Will the profit-maximizing

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quantity of Good L for Steve's Home Appliances Store increase, decrease, or stay the same in the short run? Explain.
(ii) Instead suppose the government imposes a price floor at $70 on the market for Good L. Will deadweight loss in the market for Good L increase, decrease, or stay the same in the short run as a result of the price floor? Explain.

23. Respond to all parts of the question.

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***I*nclude correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.**

The table below shows the total costs faced by Susie's Diner for different quantities of Good Q sold.

Quantity	Total Cost
0	\$25
1	\$29
2	\$31
3	\$34
4	\$40
5	\$49
6	\$61
7	\$76
8	\$94
9	\$115
10	\$139

Susie's Diner sells Good Q in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is \$8 per unit.

(a) Calculate the average fixed cost of producing 2 units. Show your work.

(b) Identify the profit-maximizing quantity. Explain using marginal analysis.

(c) Calculate the economic profit at the profit-maximizing quantity you identified in part (b). Show your work.

(d) Based on your answer to part (c), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (c), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good Q is -1.3, and the cross-price elasticity of demand for cheeseburgers with respect to the price of Good Q is -0.3. Based on your answer to part (e), what will happen to the demand for cheeseburgers? Explain.

(g) Now assume that the market in which Susie's Diner operates is in long-run equilibrium at a price of \$10 per unit.
(i) Suppose delivery costs per order for Susie's Diner decrease. Will the profit-maximizing quantity of Good Q for Susie's Diner increase, decrease, or stay the same in the short run? Explain.

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(ii) Instead suppose the government imposes a price ceiling of $6 on the market for Good Q. Will total economic surplus in the market for Good Q increase, decrease, or stay the same in the short run as a result of the price ceiling? Explain.

24. Respond to all parts of the question.

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Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total variable costs faced by Tom's Toy Store for different quantities of Good B sold.

Quantity	Total Variable Cost
1	\$3
2	\$8
3	\$14
4	\$23
5	\$38
6	\$58
7	\$83
8	\$113
9	\$148
10	\$188

Tom's Toy Store sells Good B in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $\$21$ per unit, and the total fixed cost is $\$50$.

(a) Identify the profit-maximizing quantity. Explain using marginal analysis.

(b) Calculate the economic profit at the profit-maximizing quantity you identified in part (a). Show your work.

(c) Calculate the average fixed cost of producing 4 units. Show your work.

(d) Based on your answer to part (b), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (b), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good B is 1.5, and the cross-price elasticity of demand for teddy bears with respect to the price of Good B is -0.2. Based on your answer to part (e), what will happen to the demand for teddy bears? Explain.

(g) Now assume that the market in which Tom's Toy Store operates is in long-run equilibrium.
(i) Suppose the market demand for Good B increases. Will the profit-maximizing quantity of Good B for Tom's Toy Store increase, decrease, or stay the same in the short run? Explain.
(ii) Suppose instead the wages that Tom's Toy Store pays its workers decrease. Will the profit-maximizing quantity of

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Good B for Tom's Toy Store increase, decrease, or stay the same in the short run? Explain.

25. Respond to all parts of the question.

Umbrellas are produced by a perfectly competitive, constant-cost industry. In the short run, the equilibrium price is $7 per umbrella and the typical firm is operating with a loss. The typical firm has the total cost function shown in the table below.

Daily Output	Total Cost per Day
0	$10
1	$13
2	$18
3	$24
4	$32
5	$45
6	$60

a. Using a correctly labeled graph, draw the demand curve for a typical firm in this industry.

b. Using the data above, determine each of the following for the typical firm.

   i. Total fixed cost

   ii. The loss-minimizing level of output

   iii. The value of losses at the output level you found in part (b)(ii)

c. Explain why the typical firm chooses to operate despite incurring a loss in the short run.

d. If the total cost per day remains unchanged in the long run, what is the long-run equilibrium price for umbrellas?

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26. Respond to all parts of the question.

For each of the following statements, indicate whether it is true, false, or uncertain and explain why.

a. Average total cost is always greater than average variable cost by a constant amount.

b. In the short run, a perfectly competitive firm always maximizes profit when average total cost is at minimum.

c. If a firm shuts down in the short run, its profits will equal zero.

27. Respond to all parts of the question.

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Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total variable costs faced by Waldo's Electronics Store for different quantities of Good K sold.

Quantity	Total Variable Cost
1	$60
2	$123
3	$187
4	$254
5	$323
6	$405
7	$489
8	$579
9	$675
10	$777

Waldo's Electronics Store sells Good K in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $75 per unit, and the total fixed cost is $42.

(a) Identify the profit-maximizing quantity. Explain using marginal analysis.

(b) Calculate the economic profit at the profit-maximizing quantity you identified in part (a). Show your work.

(c) Calculate the average fixed cost of producing 7 units. Show your work.

(d) Based on your answer to part (b), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (b), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good K is 0.5, and the cross-price elasticity of demand for televisions with respect to the price of Good K is 0.3. Based on your answer to part (e), what will happen to the demand for televisions? Explain.

(g) Now assume that the market in which Waldo's Electronics Store operates is in long-run equilibrium at a price of $70 per unit.
(i) Suppose annual property taxes for Waldo's Electronics Store increase by $5,000. Will the profit-maximizing quantity of Good K for Waldo's Electronics Store increase, decrease, or stay the same in the short run? Explain.

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(ii) Instead suppose the government imposes a price floor at $90 on the market for Good K. Will deadweight loss in the market for Good K increase, decrease, or stay the same in the short run as a result of the price floor? Explain.

28. Respond to all parts of the question.

j

Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

Number of Trips	Price per Trip ($)	Total Revenue ($)
1	30	30
2	28	56
3	26	78
4	24	96
5	22	110
6	20	120
7	18	126
8	16	128
9	14	126
10	12	120
11	10	110
12	8	96
13	6	78
14	4	56
15	2	30

Wrightway has a local monopoly on transportation services from Burginville's city center to its airport. Wrightway's average variable cost and marginal cost for each trip are constant at $8. Wrightway incurs a $20 cost each day regardless of the number of trips it provides. The table above shows the price per trip that Wrightway can charge for different numbers of trips provided in a day.

(a) Calculate the profit-maximizing number of trips for Wrightway to provide each day. Show your work.

(b) What is the allocatively efficient number of trips per day?

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(c) Suppose the Burginville City Council is considering two proposals to get Wrightway to reduce deadweight loss from the provision of rides.

- Proposal I: Grant a $35 daily subsidy to Wrightway
- Proposal II: Grant a $5 per trip subsidy to Wrightway

(i) How many trips would Wrightway provide each day under Proposal I?
(ii) How many trips would Wrightway provide each day under Proposal II?
(iii) Which of the two proposals is preferable to the Burginville City Council? Explain.

29. Respond to all parts of the question:

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Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

The table below shows the total costs faced by Yotti's Craft Store for different quantities of Good R sold.

Quantity	Total Cost
0	$3
1	$12
2	$18
3	$28
4	$42
5	$60
6	$82
7	$108
8	$138
9	$172
10	$210

Yotti's Craft Store sells Good R in a perfectly competitive market with a downward-sloping demand curve and an upward-sloping supply curve. The market price is $\$12$ per unit.

(a) Calculate the average fixed cost of producing 4 units. Show your work.

(b) Identify the profit-maximizing quantity. Explain using marginal analysis.

(c) Calculate the economic profit at the profit-maximizing quantity you identified in part (b). Show your work.

(d) Based on your answer to part (c), will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain.

(e) Based on your answer to part (c), will the market price increase, decrease, or stay the same in the long run? Explain.

(f) The income elasticity of demand for Good R is 0.8, and the cross-price elasticity of demand for balls of yarn with respect to the price of Good R is -0.1. Based on your answer to part (e), what will happen to the demand for balls of yarn? Explain.

(g) Now assume that the market in which Yotti's Craft Store operates is in long-run equilibrium at a price of $\$10$ per unit.
(i) Suppose shipping costs per order for Yotti's Craft Store increase. Will the profit-maximizing quantity of Good R for Yotti's Craft Store increase, decrease, or stay the same in the short run? Explain.

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(ii) Instead suppose the government imposes a price ceiling of $15 on the market for Good R. Will total economic surplus in the market for Good R increase, decrease, or stay the same in the short run as a result of the price ceiling? Explain.

30. Respond to all parts of the question.