MICROECONOMICS UNIT 3

Costs & Perfect Competition

MICROECONOMICS URP
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BIG PICTURE IDEAS

#1. The law of diminishing marginal _____ states that the additional output produced from hiring an additional worker will eventually _____.
#2. There are four per-unit short-run cost curves: AFC, AVC, _____, and _____.
#3. Firms maximize profit when marginal _____ equals marginal _____.
#4. Firms in a perfectly competitive market are price _____ because they produce identical products. They also face no _____ to entry and are efficient in the long run.
#5. Other firms enter a market if they can make _____ and leave if they make _____. In the long run, perfectly competitive firms earn no _____ profit.

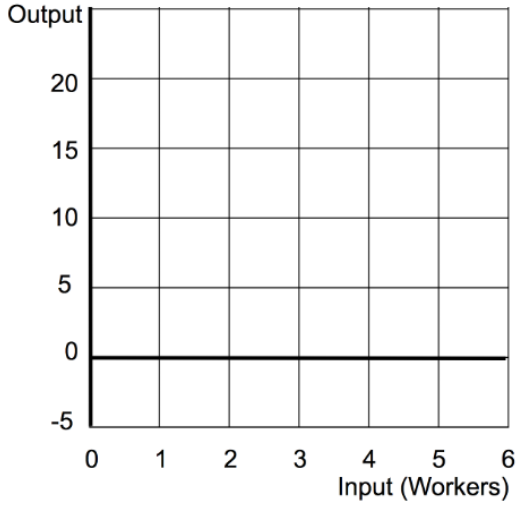
Topic 3.1- The Production Function

1. The law of diminishing marginal returns occurs because of _____ resources , like capital and land.
2. Complete the chart.

Number of Workers	Total Product (TP)	Marginal Product (MP
0	0	
1	5	
2	15	
3	19	
4	20	
5	20	
6	18	

3. After which worker does diminishing marginal returns set in?

4. Plot TP, MP, and identify the 3 stages of returns.



5. Identify the equation for marginal product.

True or False:

6. If the total product increases from 50 to 70 units as a result of hiring two workers, the marginal product is 20 units.
7. Total product increases at an increasing rate due to specialization.
8. Total product decreases when marginal product falls.

Topic 3.2- Short-Run Production Costs

9. _____ costs DON'T change as more units are produced (e.g. rent, insurance, etc.) and _____ costs do change as more units are produced (e.g. wages to workers, raw materials, etc.)
10. Identify the equation for average total cost (ATC).
11. Identify the equation for average variable cost (AVC).
12. Identify the equation for average fixed cost (AFC).
13. Define marginal cost (MC).
14. Average _____ cost plus average fixed cost equals average _____ cost.
15. When MC is _____ ATC, MC pulls ATC down. When MC is _____ ATC, MC pulls ATC up.

16. Fill in the blanks for a firm producing boxes of oranges.

Output (boxes)	Variable Cost	Total Cost	MC	AVC	AFC	ATC
0	$0	$10	-	-	-	-
1	$20					
2				$15		
3		$70			$3.30	$23
4			$40		$2.50	$27.50

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Topic 3.2- Short-Run Production Costs (continued)

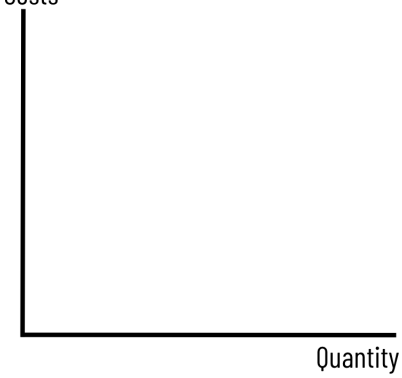
17. For each scenario, identify how each will change (↑, ↓, or no change).

	AFC	AVC	ATC	MC
Fixed costs decrease				
Variable costs decrease				
Fixed costs increase				

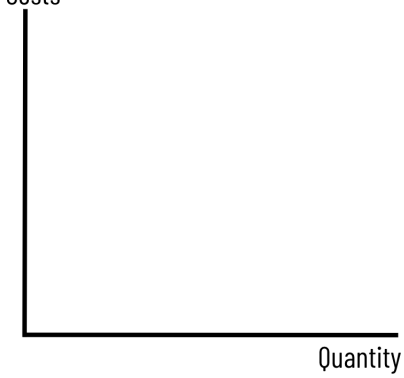
True or False

18. In the short run, all resources are variable.
19. Total cost increases at a constant rate.
20. MC always intersects ATC at ATC's minimum.
21. AFC equals ATC plus AVC.

22. Draw and label ATC, AVC, AFC, and MC.



23. Draw and label TC, VC, and FC



Topic 3.3- Long-Run Production Costs

24. In the long run, all resources are _____.
25. Define economies of scale.
26. Define diseconomies of scale.
27. On the graph to the right, draw the long run ATC and identify economies of scale and diseconomies of scale.

28. Label the minimum efficient scale quantity Q*.

Topic 3.4- Types of Profit

29. _____ profit is total revenue minus only explicit costs.
30. _____ profit is total revenue minus explicit and implicit costs (including opportunity costs).
31. What is normal profit?

True or False:

32. If economic profit is zero, accounting profit is positive.
33. Profit equals marginal revenue minus marginal cost.

Topic 3.5- Profit Maximization

Use the table to calculate the following. Assume the price is $15.

Output	Total Cost
0	$10
1	$20
2	$24
3	$30
4	$40
5	$60
6	$90
7	$140

34. What is the profit maximizing quantity? Explain.
35. How much is the profit or loss? Show work.
36. What is the profit or loss if the price increased to $25? Show work.

Topic 3.6- Short-Run and Long-Run Decisions

37. What is the shutdown rule?

38. Where is a firm's short-run supply curve?

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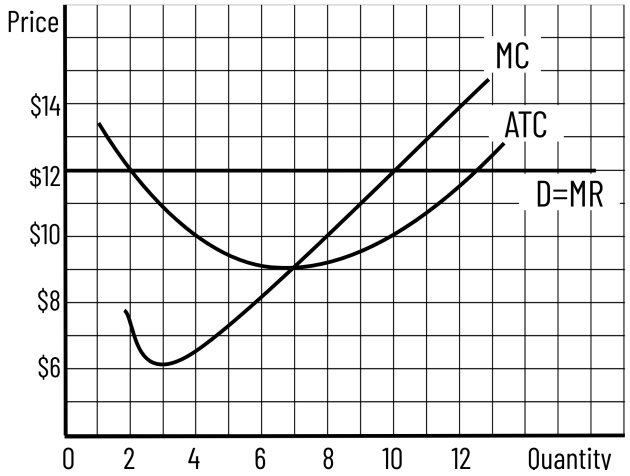
Topic 3.7- Perfect Competition

39. Identify the characteristics of perfect competition.

Use the graph to identify the following. Show your work.

40. Profit maximizing quantity.
41. Total revenue.
42. Total cost.
43. Economic profit.
44. What will happen to the number of firms in the market in the long run? Explain.
45. Assume the market reaches long run equilibrium. What would be the price and quantity?
46. If the price fell to $8, should the firm shut down in the short run?



47. Draw a perfectly competitive market and firm with the firm making profit. Shade profit.

Market

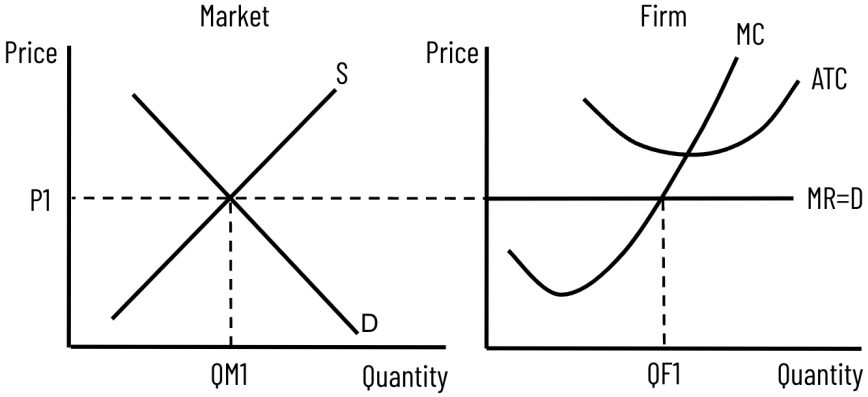
Firm

48. Draw a perfectly competitive firm in long run equilibrium.

49. What must be true if a firm continues to produce when they have a short-run loss?

50. In long run, perfectly competitive firms are _____ efficient because the price equals the marginal cost.
51. In long run, perfectly competitive firms are _____ efficient because output is produced at the lowest cost.
52. In the long-run, firms earn no economic profit, but accounting profit is _____ .

53. Show what will happen on both graphs in the long run assuming constant costs.



54. What happened to the price and quantity in the market?

55. What happened to the price and quantity for the firm?

56. The market price will stay the same from long run to long run in a _____ cost industry.
57. The market price will increase from long run to long run in an _____ cost industry.