

One Rule to Rule Them All: Simplifying Profit Maximization Across Market Structures



JETSET

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In All Market Structures . . .

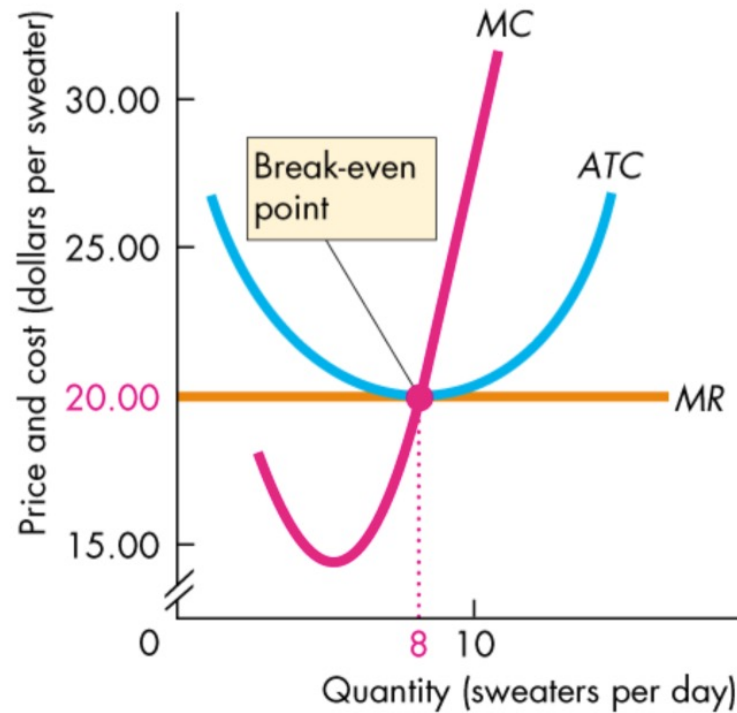
- Businesses **dream** of the economic profits and price-making power of monopoly
- But forces of competition usually push businesses back towards their **nightmare** of perfect competition

National Content Standard (5.H.1) for Short-Run Profit-Maximization

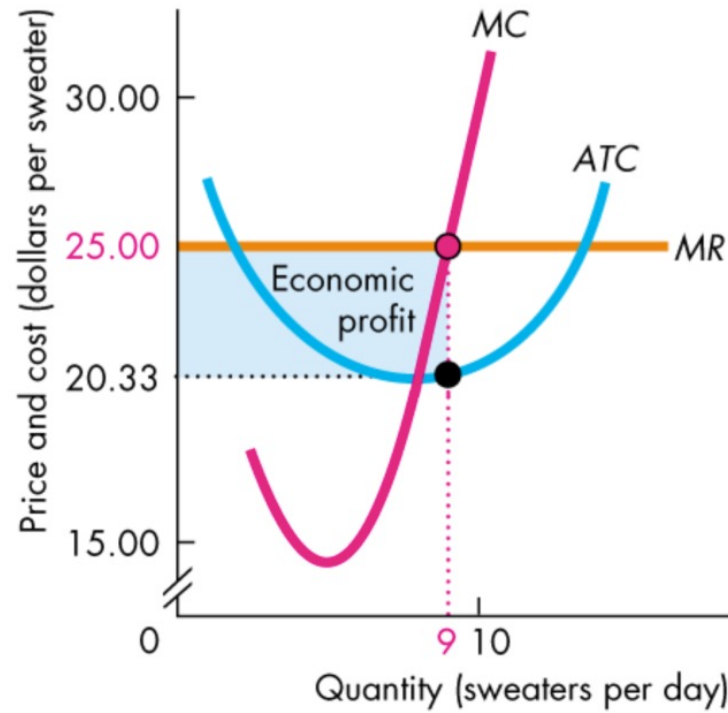
“To maximize profit and determine the profit maximizing level of output and resources, producers must compare the marginal benefits and marginal costs of producing slightly more against producing slightly less.”

Firm's Profit-Maximizing Decision Usually Modelled with Cost Curves

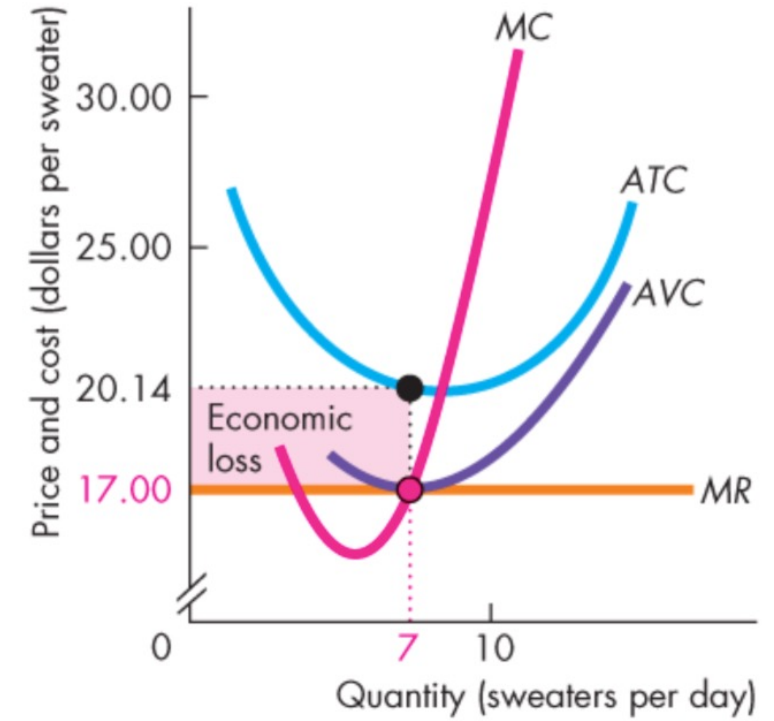
For Perfect Competition



(a) Break even



(b) Economic profit



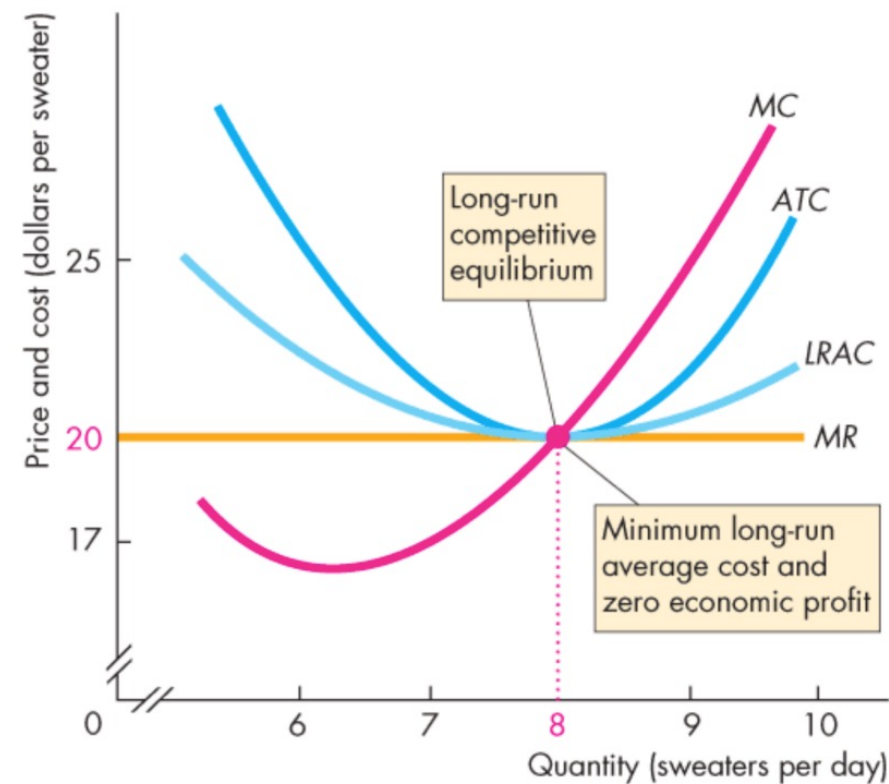
(c) Economic loss

- Can we model/explain the firm's profit-maximizing decision *without* cost curves?

*Who Needs Cost Curves
Yes!
In Principles of Economics?*

How Economic Profits Direct the Invisible Hand

- From an LT perspective, what's important about this cost-curve graph is the **invisible hand story** behind it
- How economic profits direct the invisible hand of competition to produce the *miracle of markets* — efficient allocation of resources across industries
- Economic profits as a signal to reallocate resources through entry and exit, (moving from short-run to long-run equilibrium)





How to Tell the Invisible Hand Story

Without Cost Curves



MC is the one cost curve we need.

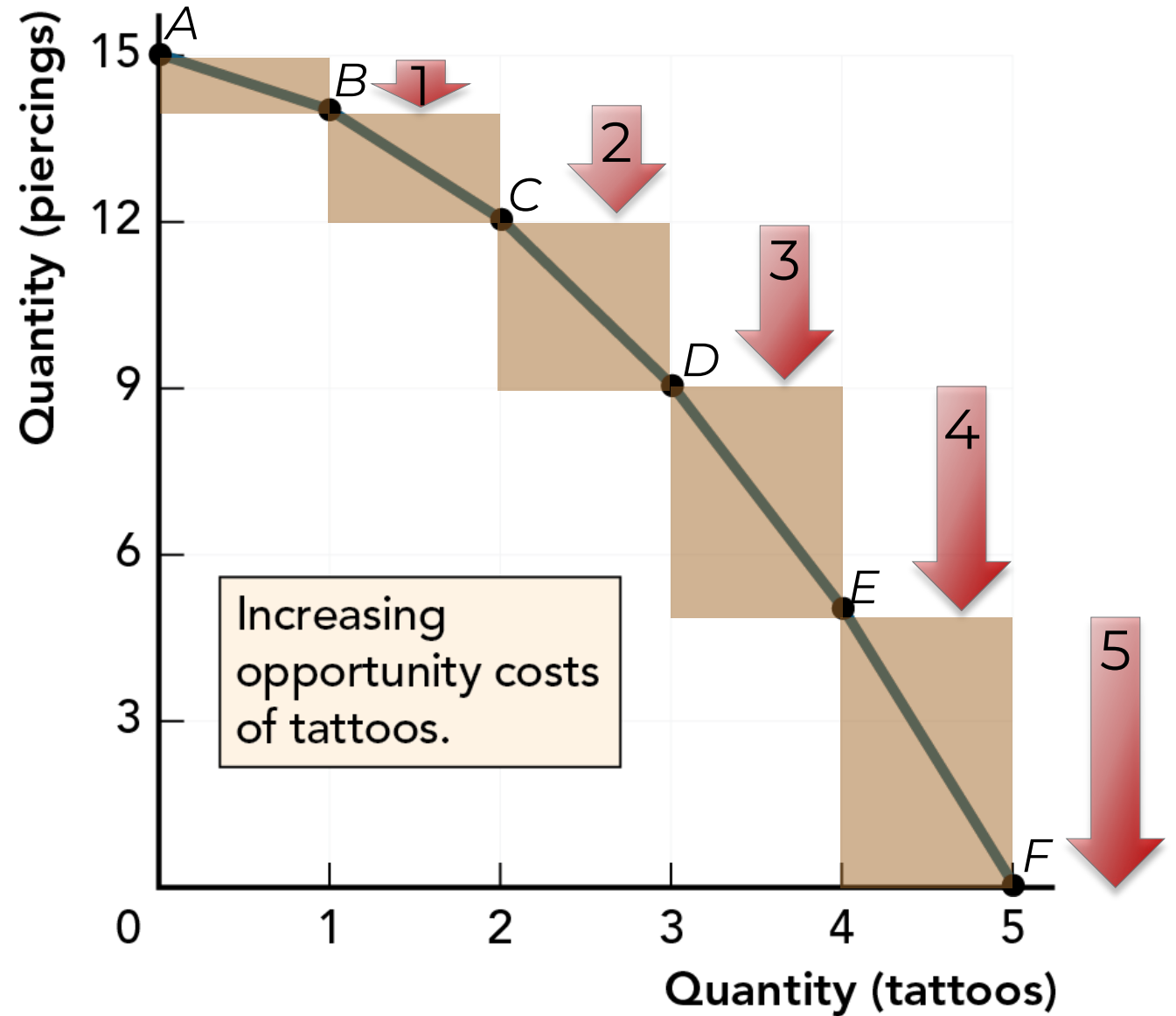
More for More Money: **The Law of Supply**

If the price of a product or service rises, quantity supplied increases.

Businesses increase production when higher prices either create higher profits or cover higher marginal opportunity costs of production.

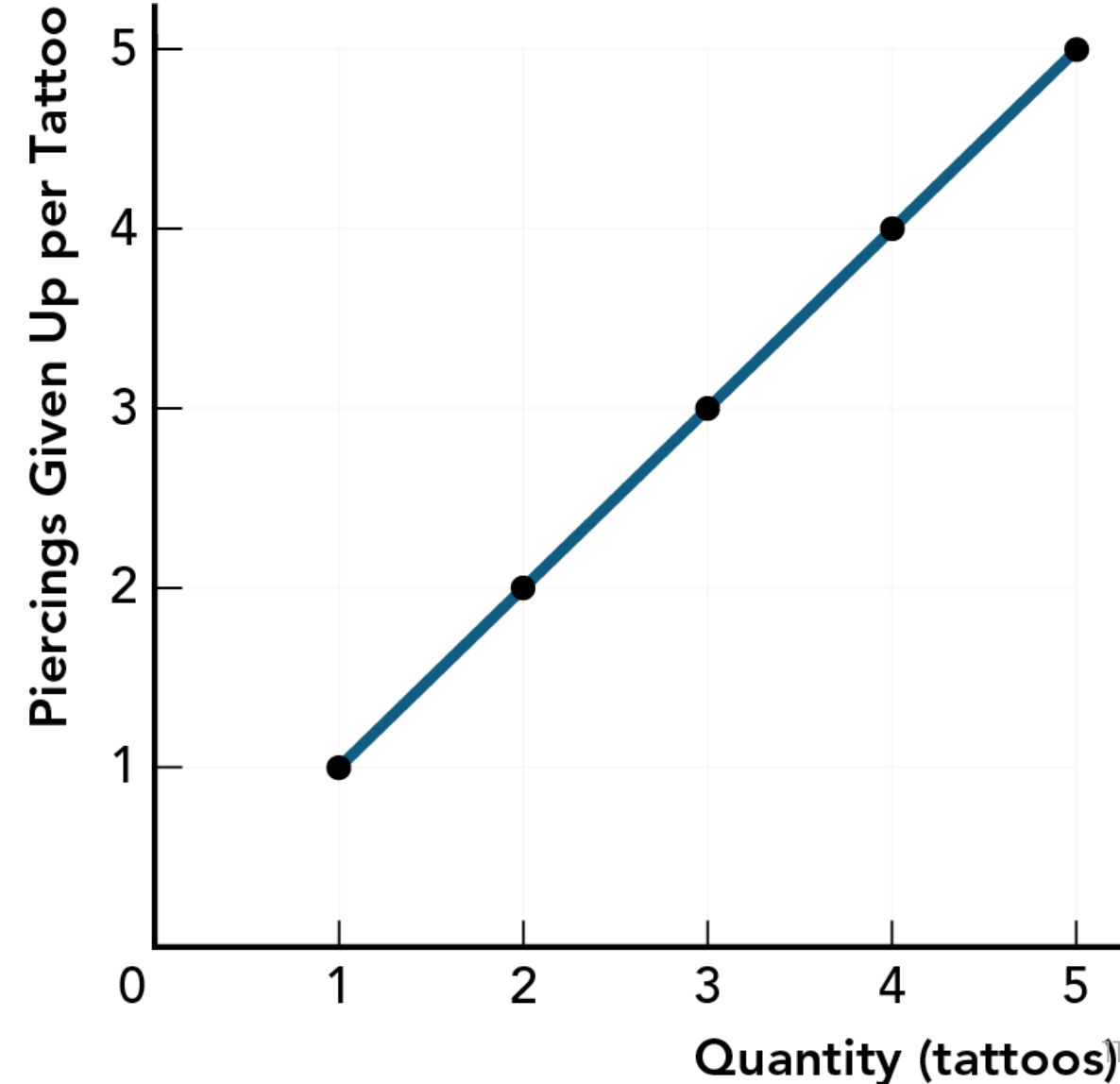
Paola's Parlor Production Possibilities Frontier

Combination	Piercings	Tattoos
A	15	0
B	14	1
C	12	2
D	9	3
E	5	4
F	0	5



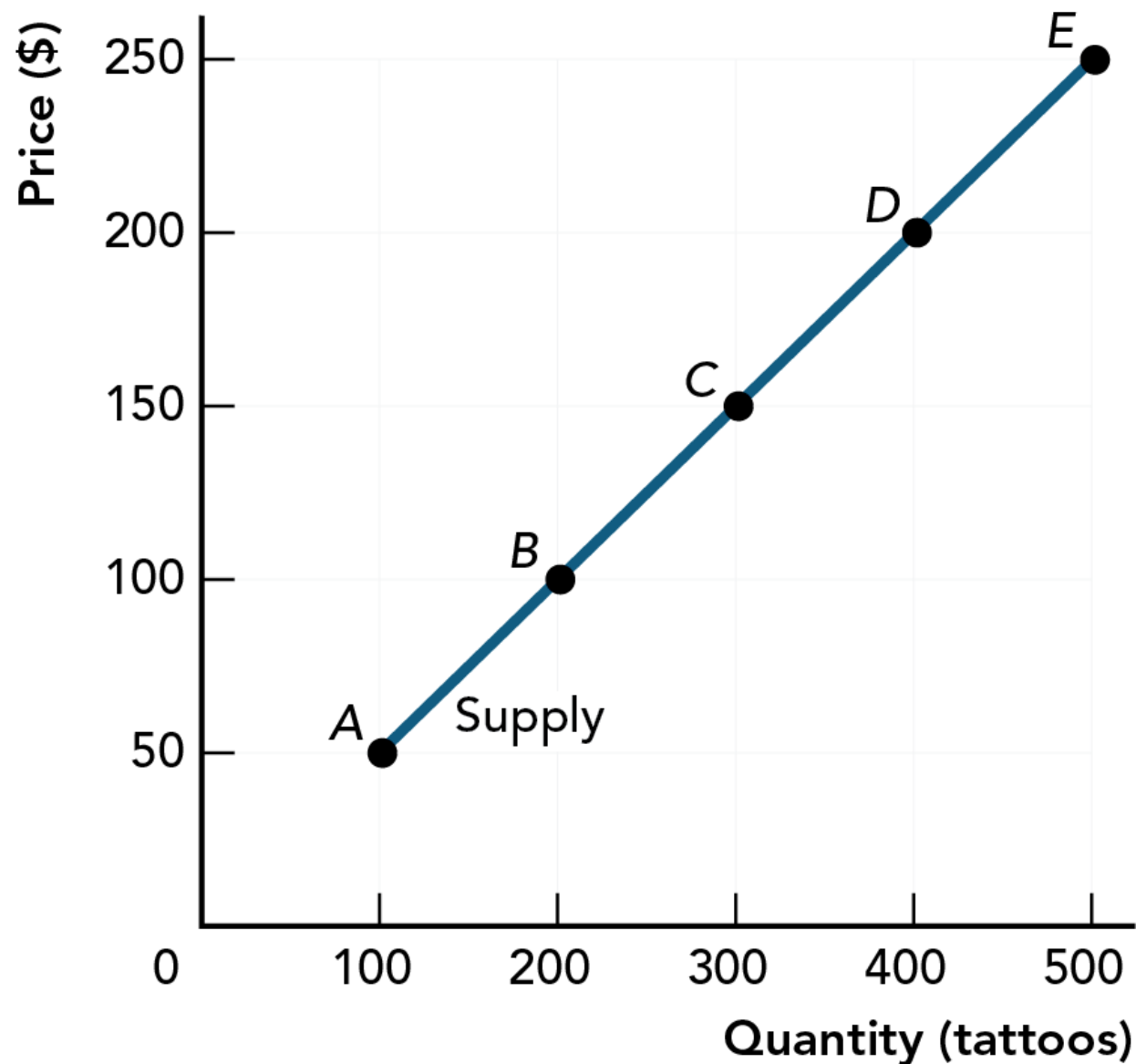
Marginal Opportunity Costs of Additional Tattoos Measured in Piercings

Marginal Opportunity Cost of Additional Tattoos (piercings sets given up)	Quantity Supplied (tattoos)
1	1
2	2
3	3
4	4
5	5

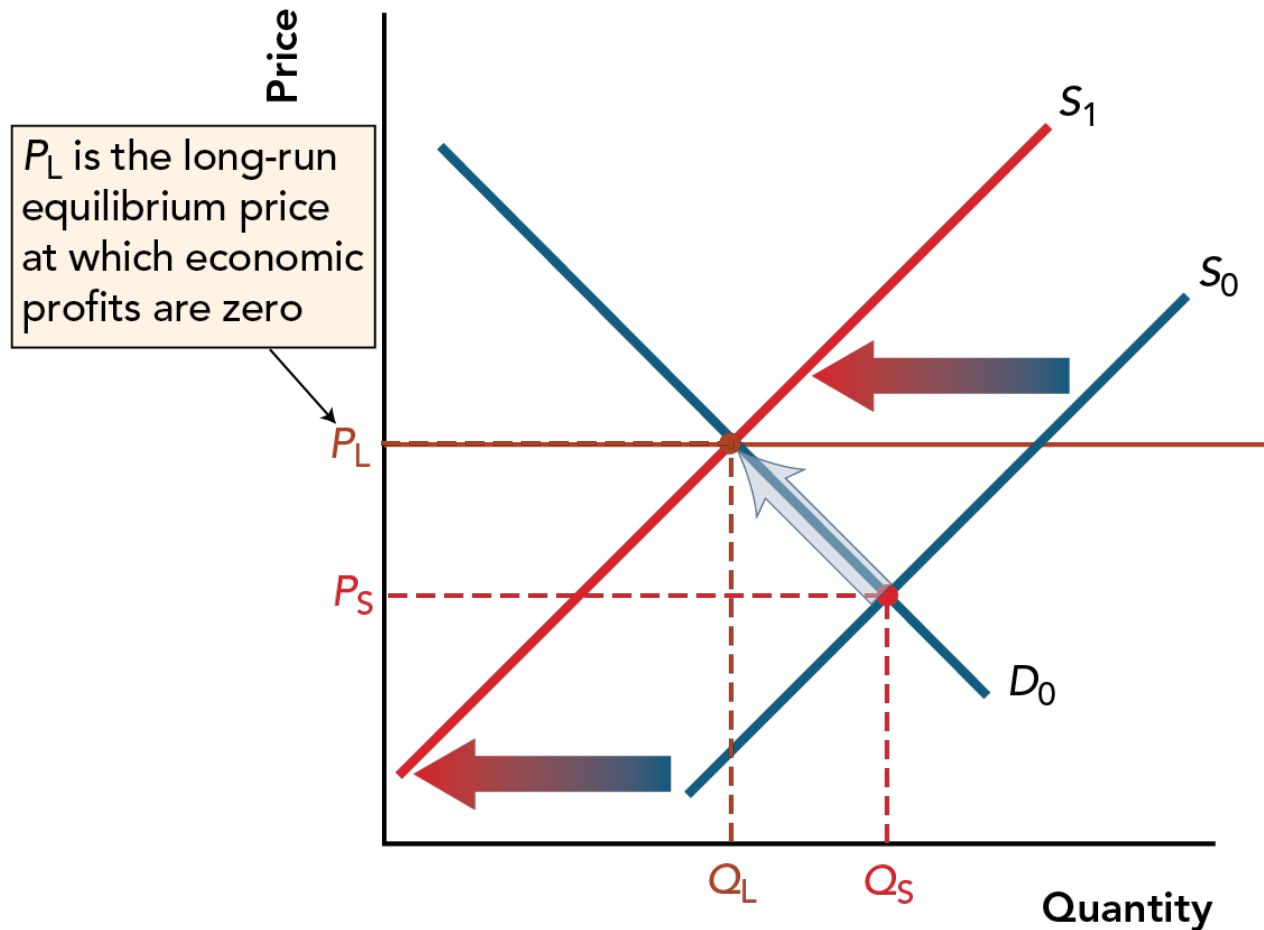


Market Supply of Tattoos

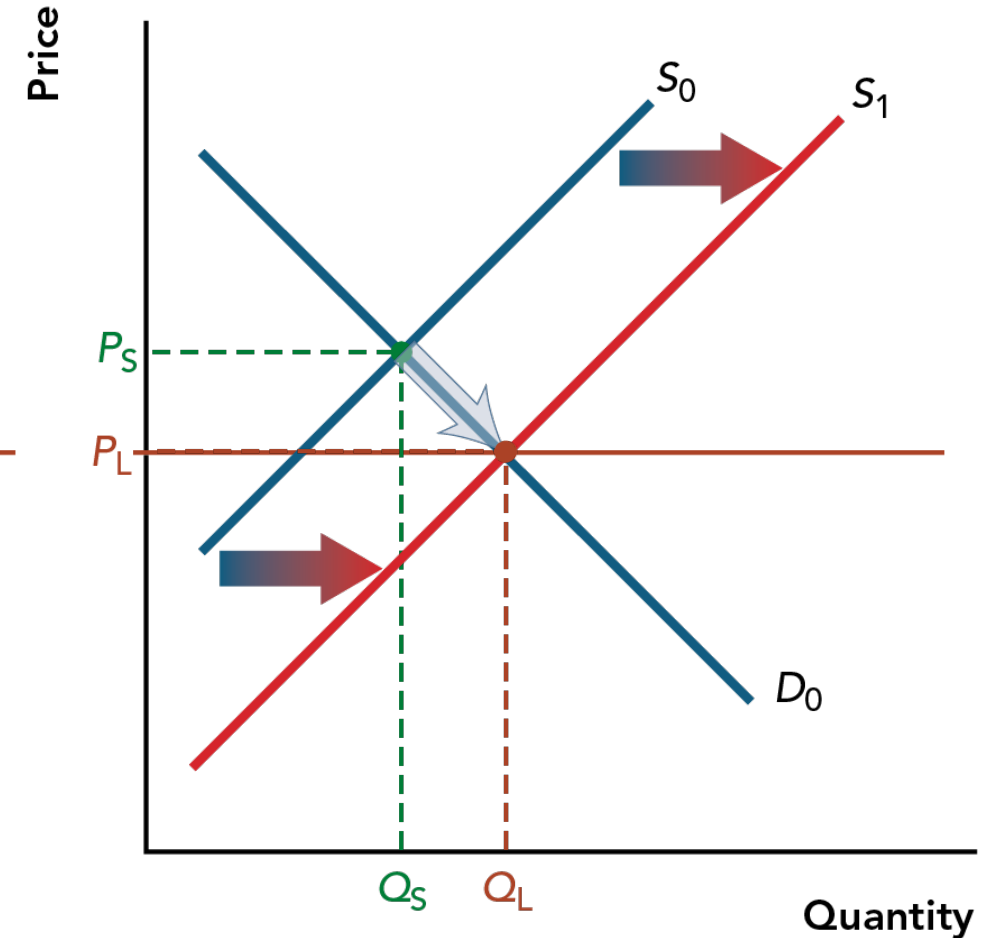
Row	Price (marginal opportunity cost or minimum willing to accept per tattoo)	Quantity Supplied (tattoos)
A	\$ 50	100
B	\$100	200
C	\$150	300
D	\$200	400
E	\$250	500



Short-Run and Long-Run Market Equilibrium



a) Economic Losses and Decreased Supply Lead to Long-Run Market Equilibrium



b) Economic Profits and Increased Supply Lead to Long-Run Market Equilibrium

“ ... If in the same neighbourhood, there was any employment evidently either more or less advantageous than the rest, so many people would crowd into it in the one case, and so many would desert it in the other, that its advantages would soon return to the level of other employments. ”



Adam Smith

The Wealth of Nations, 1776

250th Anniversary This Year !

What About Firm's Short-Run Profit-Maximization *Across Market Structures?*

“To maximize profit and determine the profit maximizing level of output and resources, producers must compare the marginal benefits and marginal costs of producing slightly more against producing slightly less.”

Do we need cost curves (beyond marginal cost) ?

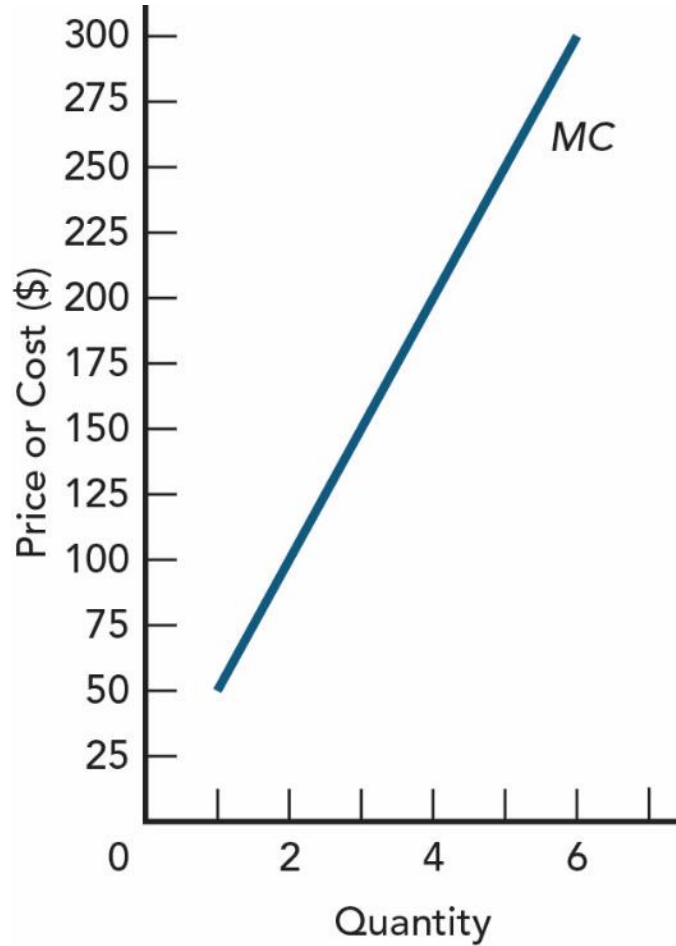
No

Just need *MC* and *MR*

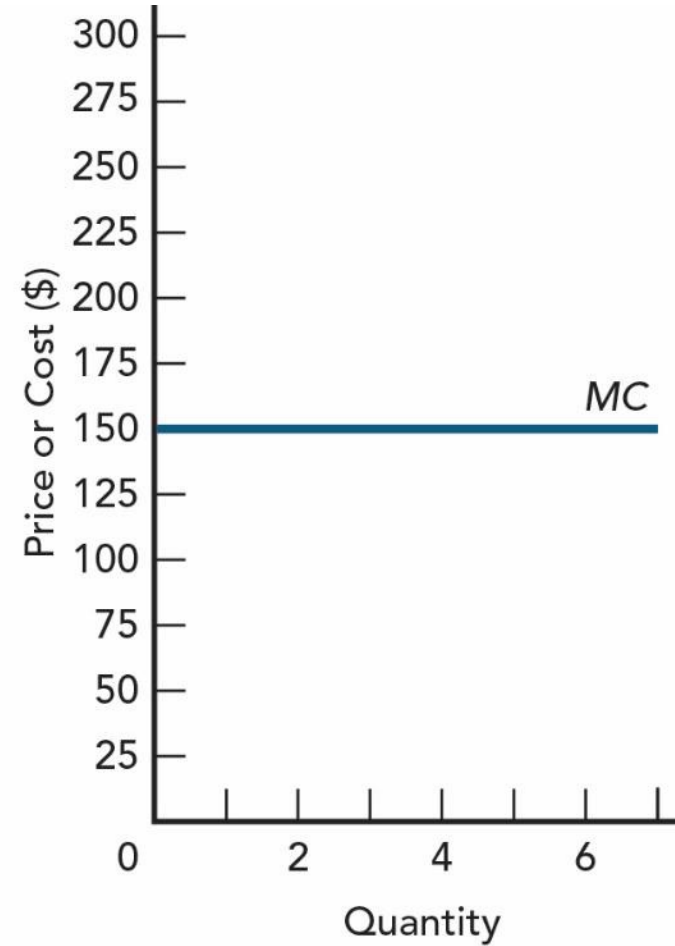
Marginal Cost

- **Marginal cost** — additional opportunity cost of increasing quantity supplied, calculated as the change in total costs
 - Businesses operating near capacity, or shifting to more expensive inputs, have increasing marginal costs to increase output
 - Businesses *not* operating near capacity, or with economies of scale, have constant marginal costs to increase output

Increasing and Constant Marginal Costs



a) Increasing Marginal Cost



b) Constant Marginal Cost

Pricing Power and Marginal Revenue

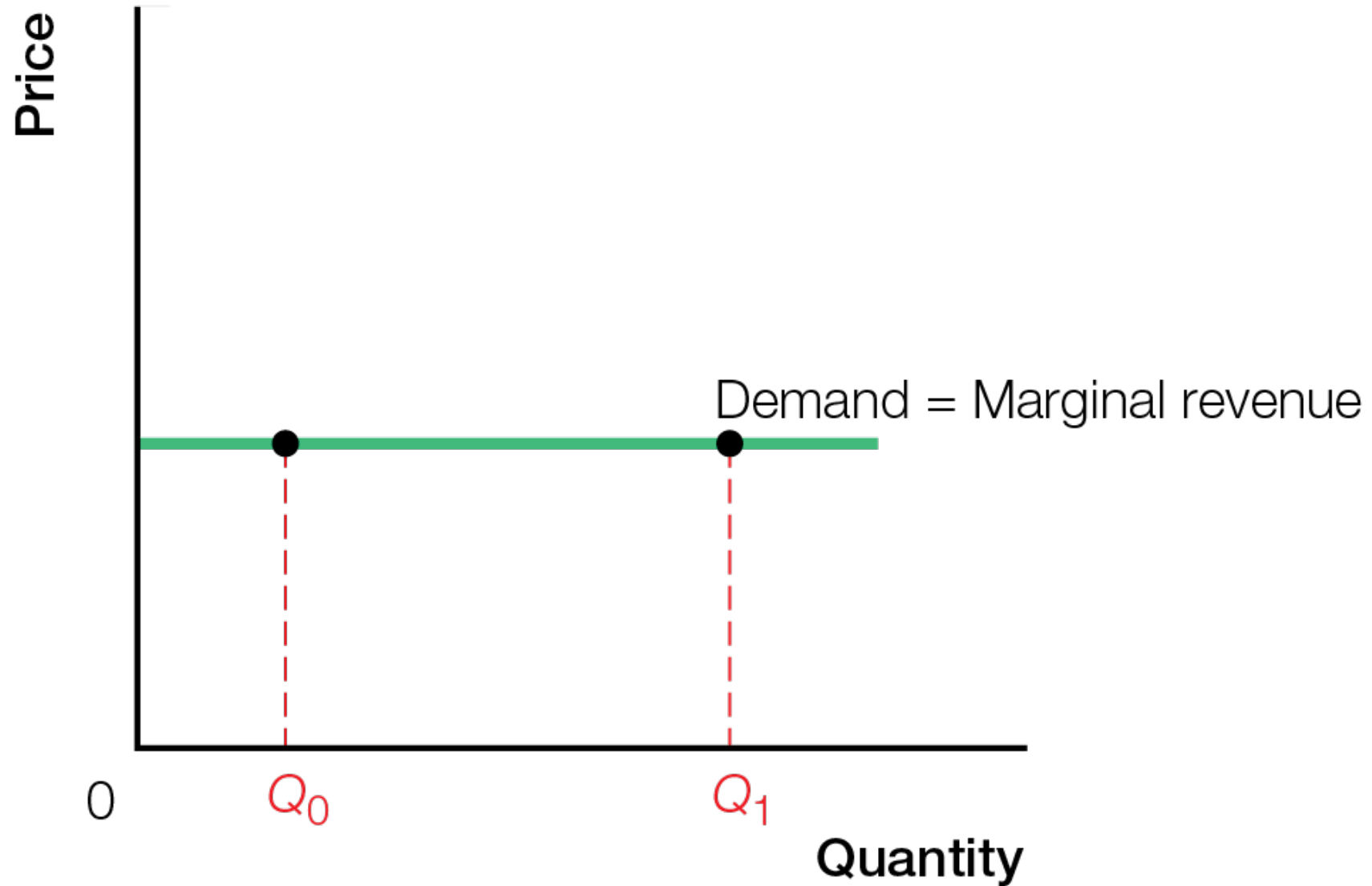
- **Pricing power** is a continuum between extremes of monopoly (price maker) and perfect competition (price taker)
- Depends on market structure —
 - substitutes (product differentiation)
 - number of businesses
 - barriers to entry
- Inversely related to elasticity of demand

Market Structure and Pricing Power

Market Structure Characteristic	Monopoly	Oligopoly	Monopolistic Competition	Perfect Competition
Pricing Power	Price Maker (maximum pricing power)	Price Maker (much pricing power)	Price Maker (limited pricing power)	Price Taker (no pricing power)
Product Substitutes	No Close Substitutes	Differentiated Substitutes	Differentiated Substitutes	Many Perfect Substitutes
Number of Sellers	1	Few	Many	Great Many
Barriers to Entry	High	Medium	None	None
Elasticity of Demand	Inelastic	Inelastic	Elastic	Perfectly Elastic

- What about marginal revenue across market structures?

Demand Equals Marginal Revenue for Price Takers

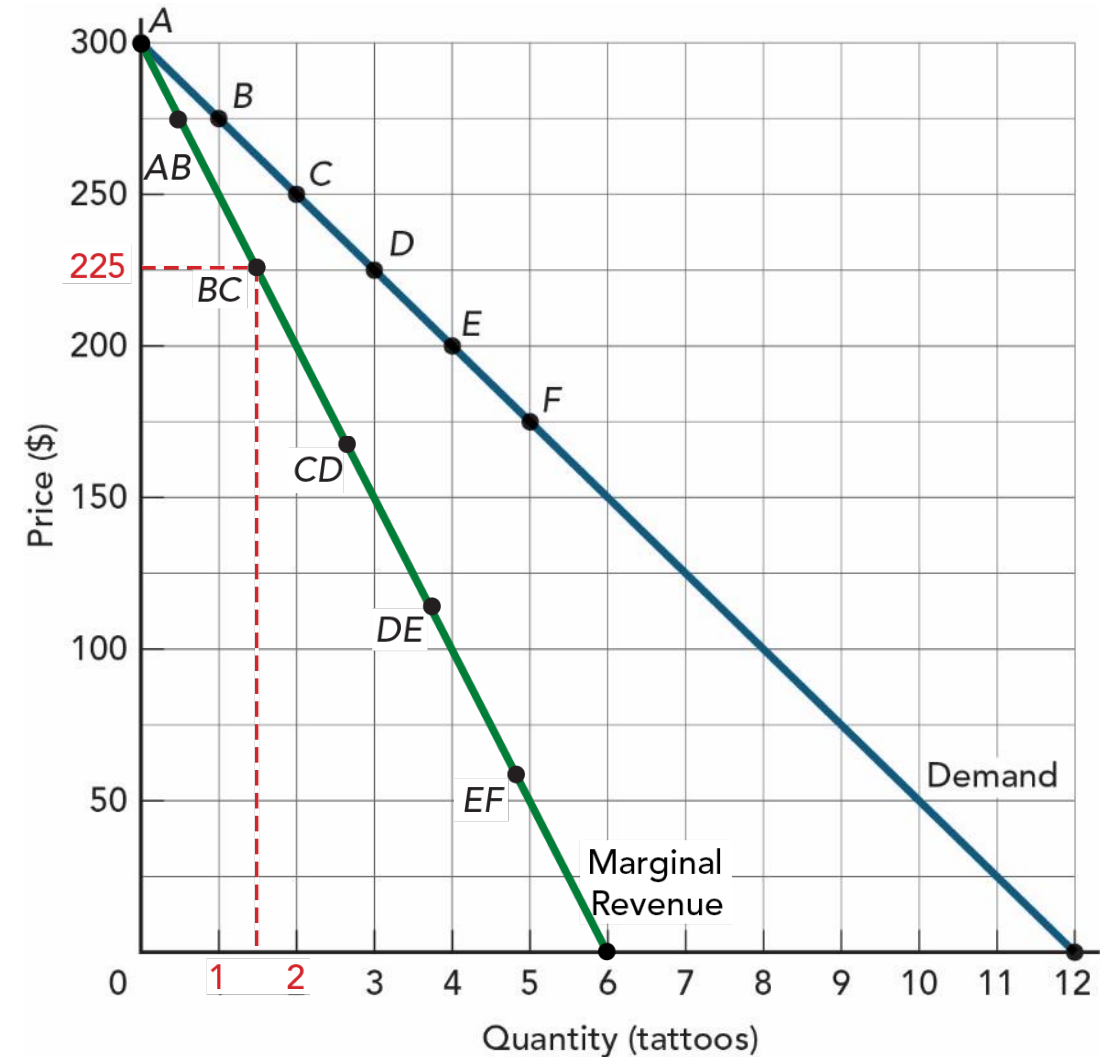


Marginal Revenue for Price Makers

- One-price rule — products easily resold tend to have a single price in the market
 - When a price-making business lowers price,
it must lower price on all units sold, not just new sales
 - Reason why marginal revenue < price for price makers

Demand and Marginal Revenue for Price Makers

Row	Price (\$)	Quantity Demanded	Total Revenue (price × quantity)	Marginal Revenue (change in total revenue)
A	\$300	0	\$ 0	
B	\$275	1	\$275	\$275
C	\$250	2	\$500	\$225
D	\$225	3	\$675	\$175
E	\$200	4	\$800	\$125
F	\$175	5	\$875	\$ 75



One Profit-Maximizing Rule To Rule All Market Structures

Quantity Decision

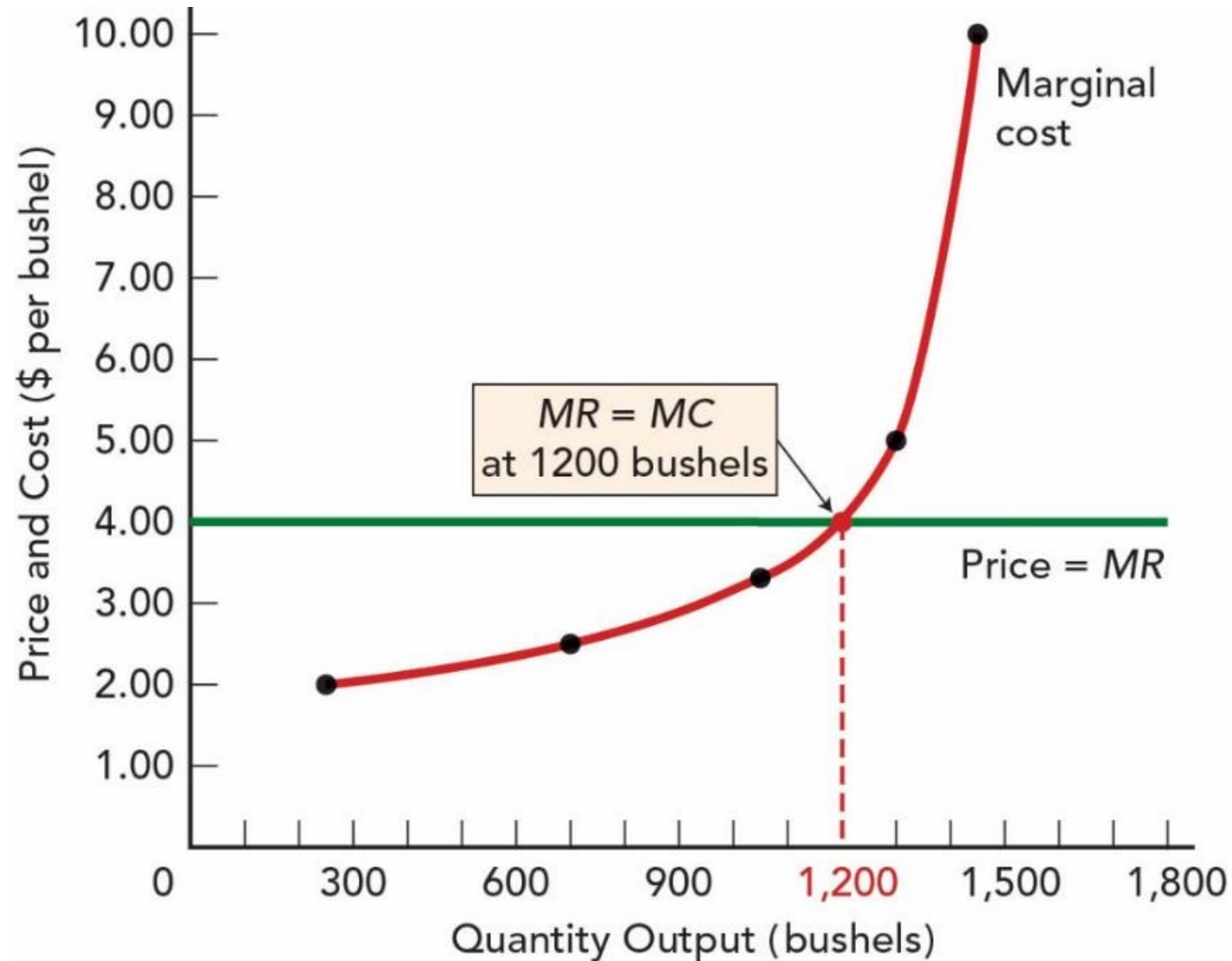
Produce all quantities for which marginal revenue is greater than marginal cost

Price Decision

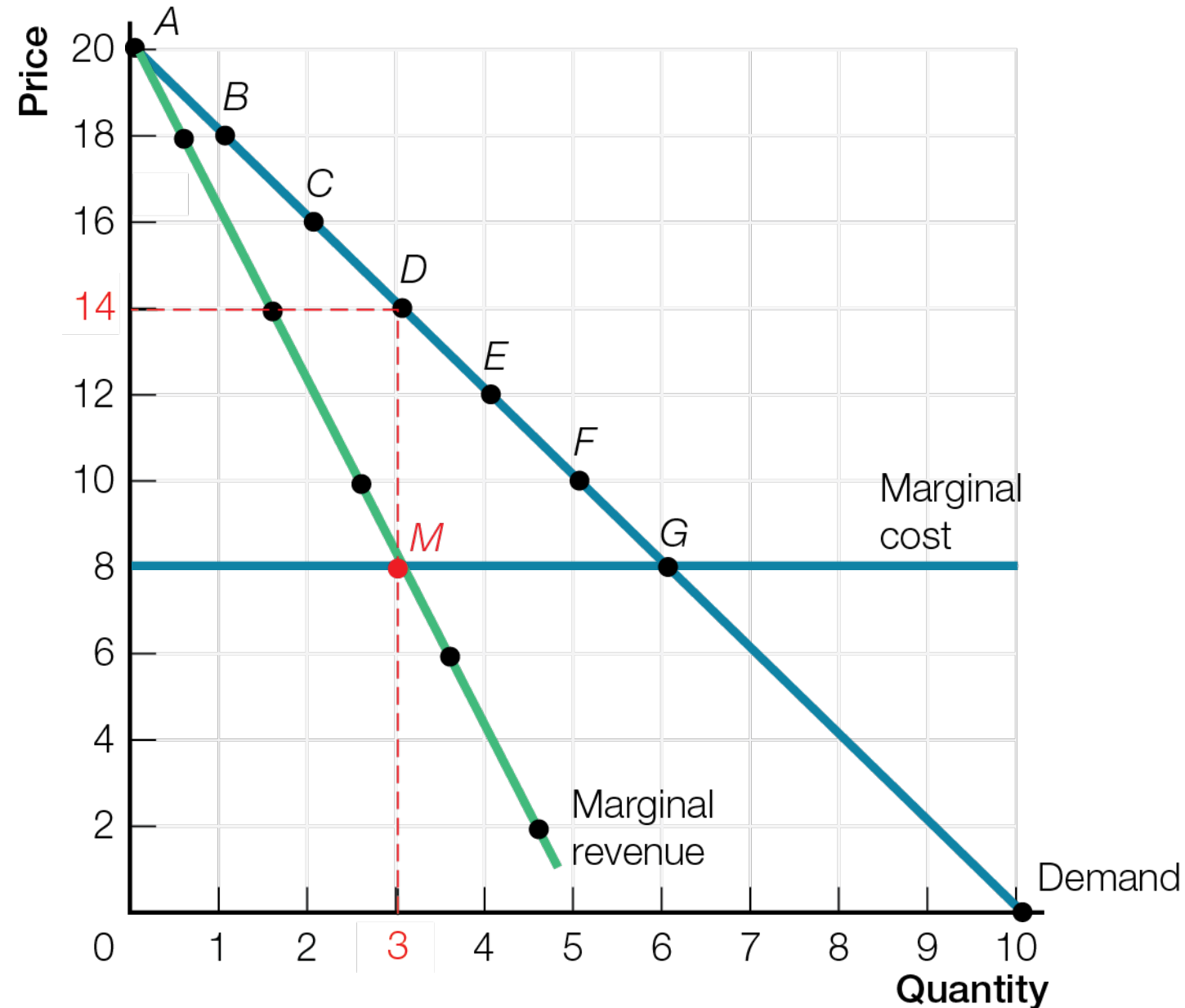
Set the highest possible price that allows you to sell that quantity



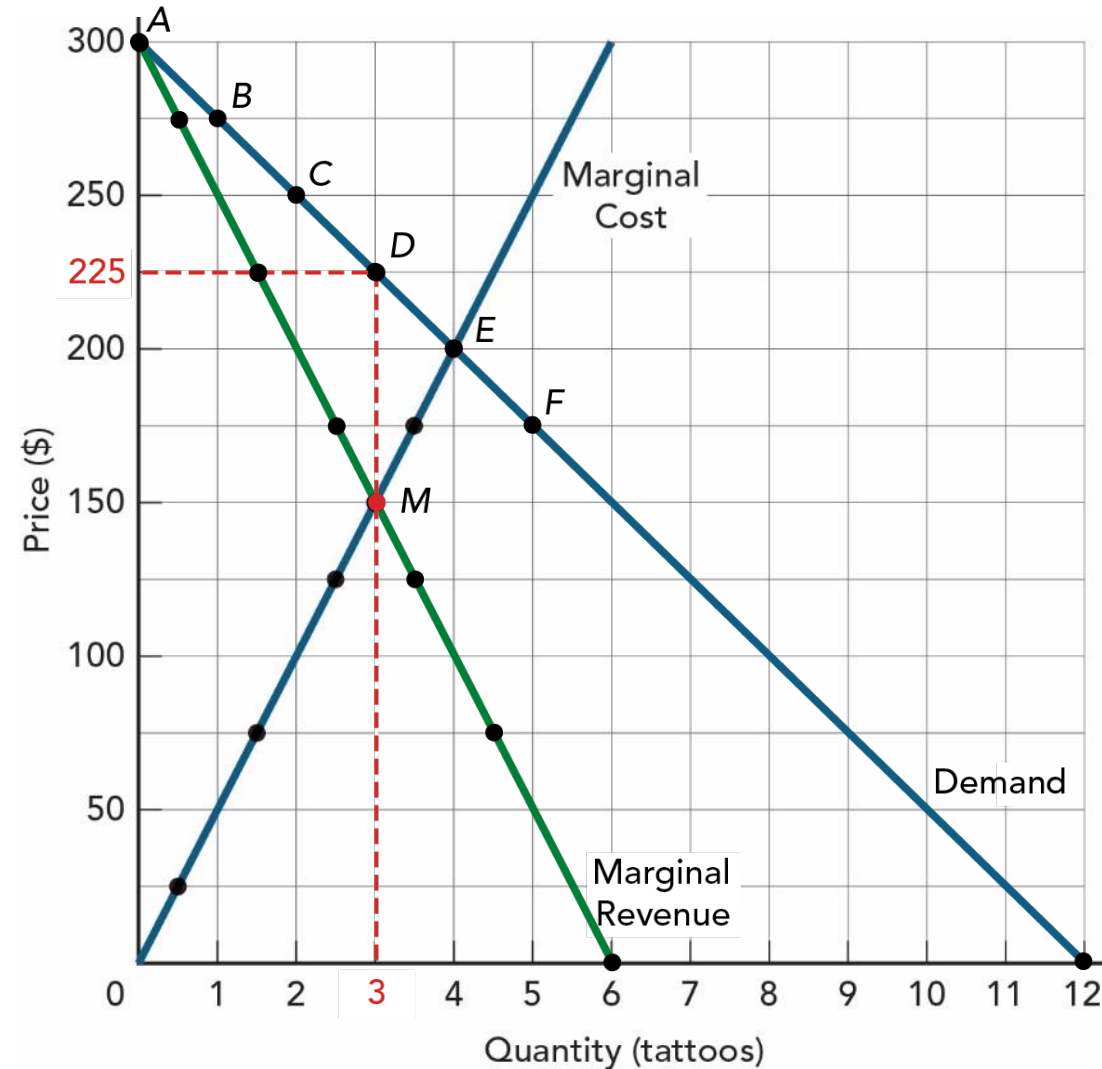
Marginal Revenue and Increasing Marginal Cost for Price Takers



Marginal Revenue and Constant Marginal Cost for Price Makers



Marginal Revenue and Increasing Marginal Cost for Price Makers



Paola's Calculation of Economic Profits for Tattoos

Column								
1	2	3	4	5	6	7	8	9
Row	Price	Quantity Demanded	Total Revenue	Marginal Revenue	Marginal Cost	Change in Total Profits	Total Costs (Fixed Costs + Sum of Marginal Costs)	Economic Profits (Total Revenue – Total Costs)
A	\$300	0	\$ 0			\$ 0	\$ 100 (Fixed Costs)	–\$100 (Losses)
				\$275	\$ 25			
B	\$275	1	\$275			+\$250	\$ 125	\$150
				\$225	\$ 75			
C	\$250	2	\$500			+\$150	\$ 200	\$300
				\$175	\$125			
D	\$225	3	\$675			+\$ 50	\$ 325	\$350
				\$125	\$175			
E	\$200	4	\$800			–\$ 50	\$ 500	\$300
				\$ 75	\$225			
F	\$175	5	\$875			–\$150	\$ 725	\$150
				\$ 25	\$275			
G	\$150	6	\$900			–\$250	\$1,000	–\$100

Advantages of LT Exposition of Firm's Price and Quantity Decisions

- Preserves importance of *focusing on the margin* for business quantity and price decisions (National Content Standard)
- Avoids complicated cost curve diagrams and separate chapters for each market structure
- Shifts emphasis away from perfect competition towards the one rule for all business profit-maximizing decisions
- Emphasizes competitive actions of real business decisions

To Compete is a Verb

- Competition is an active attempt to increase profits and gain the market power of monopoly
- How do businesses compete?
 - cutting costs
 - improving quality and product innovation
 - advertising and brand loyalty
 - eliminating competition
 - building barriers to entry
- Schumpeter's **creative destruction**

““

... the competition from the new commodity, the new technology, the new source of supply, the new type of organization — competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing businesses but at their foundations and their very lives. This kind of competition is as much more effective than [price competition] as a bombardment is in comparison with forcing a door ... ”



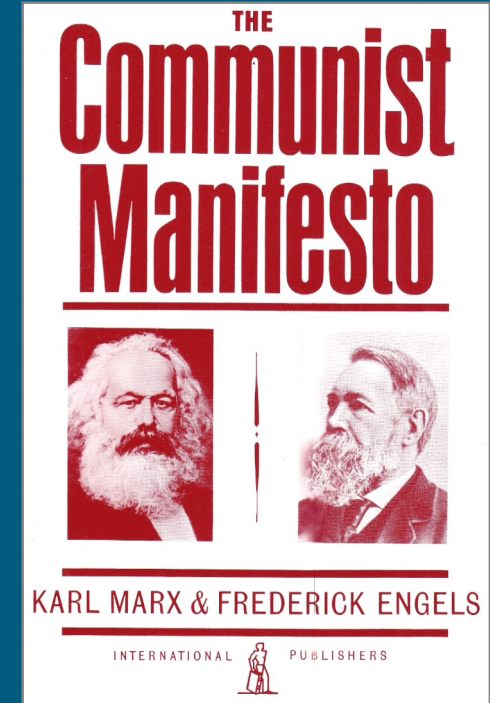
Joseph Schumpeter

Capitalism, Socialism and Democracy, 1942

Why Marx Admired Capitalism

“The bourgeoisie, during its rule of scarce one hundred years, has created more massive and more colossal productive forces than have all preceding generations together.”

Karl Marx and Friedrich Engels
The Communist Manifesto, 1848)



Perfect Competition is the Absence of All Competition

“

For Smith, ... competition was a **process** through which a predicted result — the equation of price and cost — was achieved.

With Cournot [and mathematical economists], competition came to mean ... a **hypothetically realized situation** in which business rivalry, or competition in the Smithian sense, was ruled out by definition.

Perfect competition, as Hayek has cogently observed,

"means indeed the absence of all competitive activities." ”

Paul J. McNulty

A Note on the History of Perfect Competition, *JPE*, 1967

Perfect Competition ?

- Out of equilibrium, only price competition or entry/exit identical firms
- Perfect competition is an equilibrium, static state
 - the absence of all competition
- References
 - Stigler, G. S. 1957. Perfect competition, historically contemplated. *Journal of Political Economy* 65 (a): 1-17.
 - McNulty, P. J. 1967. A note on the history of perfect competition. *Journal of Political Economy* 75 (4): 395-399.
 - McNulty, P. J. 1968. Economic theory and the meaning of perfect competition. *Journal of Political Economy* 82 (4): 639- 656.

Literacy-Targeted Take-Aways

- Can explain firm's profit-maximization decision without cost curves
- Only need marginal revenue and marginal cost
- Can use *PPF* to simplify derivation of *MC*
- View market structures as a continuum of pricing power
- All businesses dream of monopoly profits and act to avoid nightmare of perfect competition
- Avoid student skepticism about perfect competition and engage them with focus on real competitive behaviors