

Intro to Economic Analysis: Microeconomics

EC 201 - Day 10 Slides

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27 October 2021

Logistics

- ▶ Official homework 4 due this Saturday at 11:59pm, covering last week's material
- ▶ Next news assignments posted, due today
- ▶ Midterm is a week from today – Wednesday, November 3rd
 - Bring non-graphing, non-algebra calculator
 - Bring #2 Pencil
 - Bring picture ID

Recall

- ▶ A Price Ceiling is a legal maximum on the price at which a good can be sold

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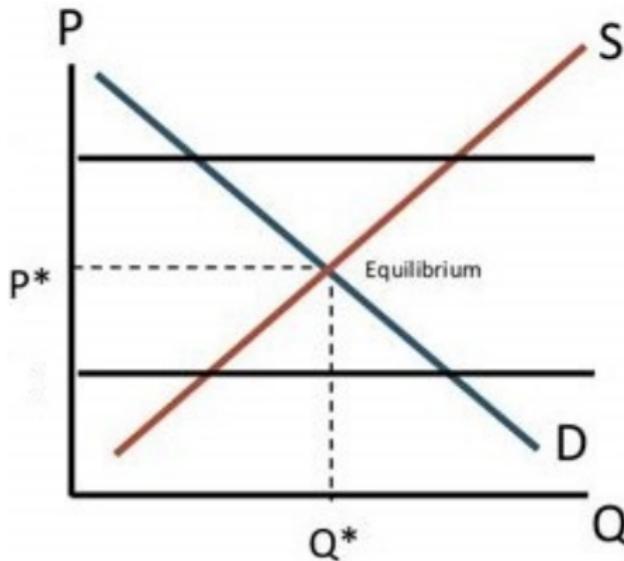
- ▶ A Price Ceiling is a legal maximum on the price at which a good can be sold
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- ▶ In general, when supply/demand curves are steep, we say they are inelastic, and when they are flatter, we say they are elastic

Recall

- ▶ A Price Ceiling is a legal maximum on the price at which a good can be sold
- ▶ A Price Floor is a legal minimum on the price at which a good can be sold
- ▶ In general, when supply/demand curves are steep, we say they are inelastic, and when they are flatter, we say they are elastic
- ▶ A market is said to be efficient if we are maximizing total surplus

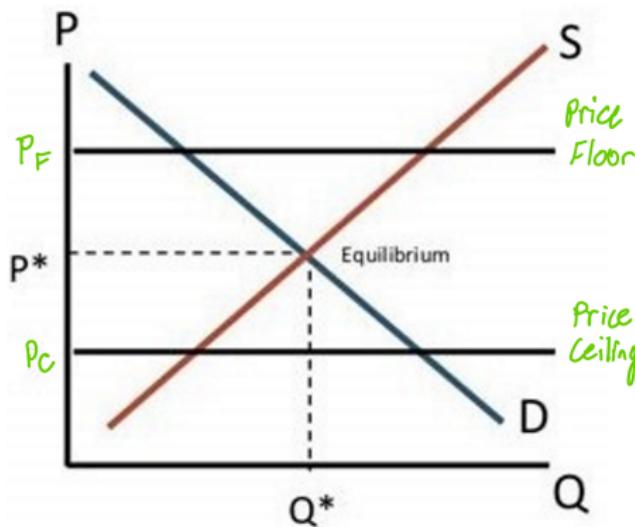
Effective Price Controls

- ▶ Which of the following is an effective price floor, and which is an effective price ceiling?



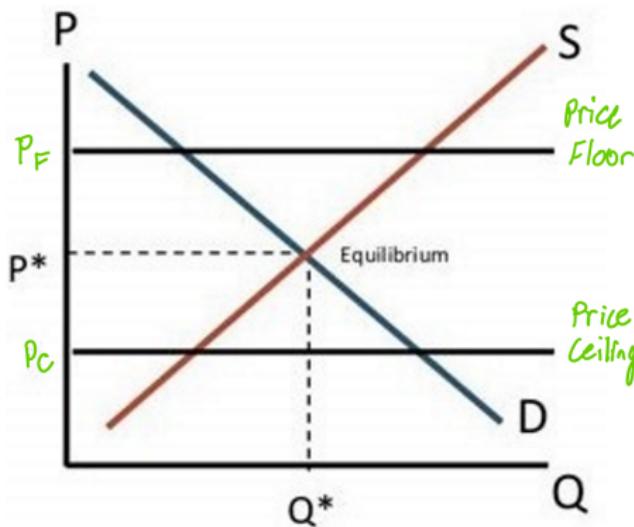
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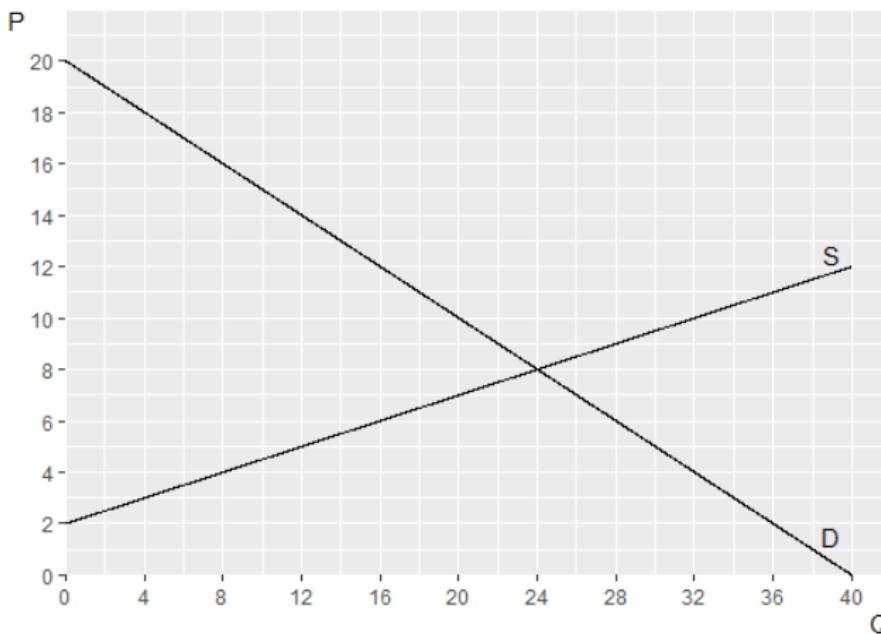
- It's the opposite of what you might think: effective price floors are above equilibrium, effective price ceilings are below



- Remember, that either of these could be a ceiling/floor, but if I tell you it's an "effective" ceiling floor, you can tell which is which

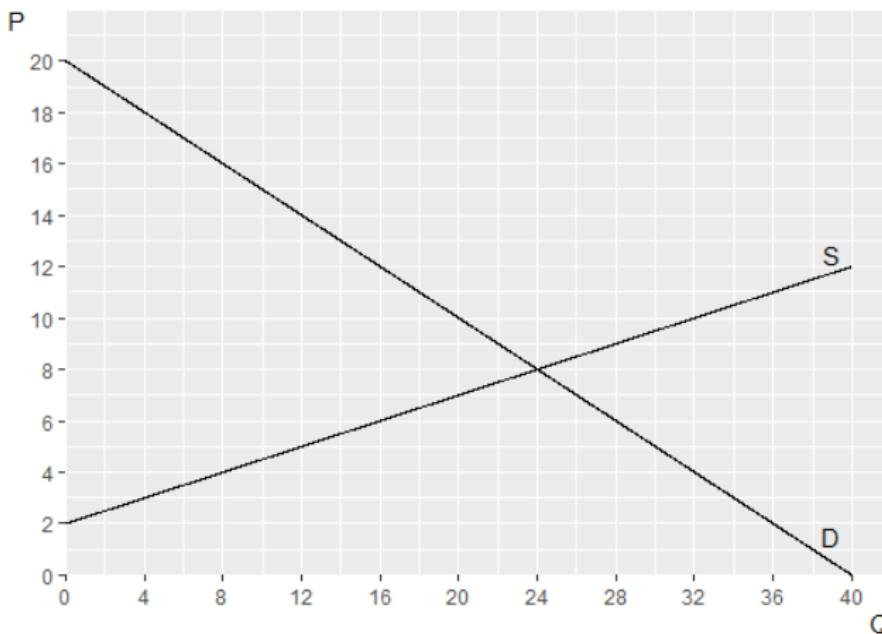
Example 1 – Unregulated (Q)

- ▶ Consider the following market for MLB tickets



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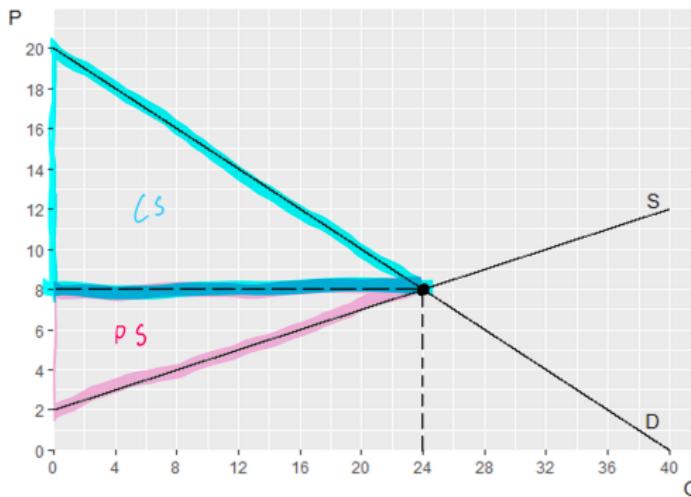
- ▶ Consider the following market for MLB tickets



- ▶ Compute CS, PS, and TS in this graph

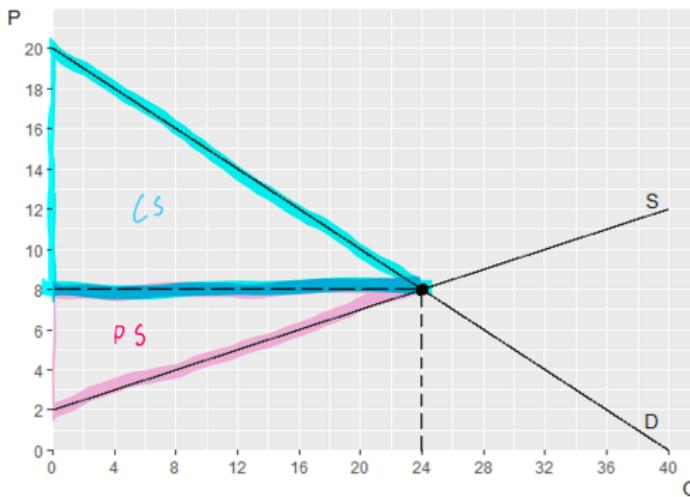
Example 1 – Unregulated (A)

- ▶ CS/PS are visualized as in the graph below:



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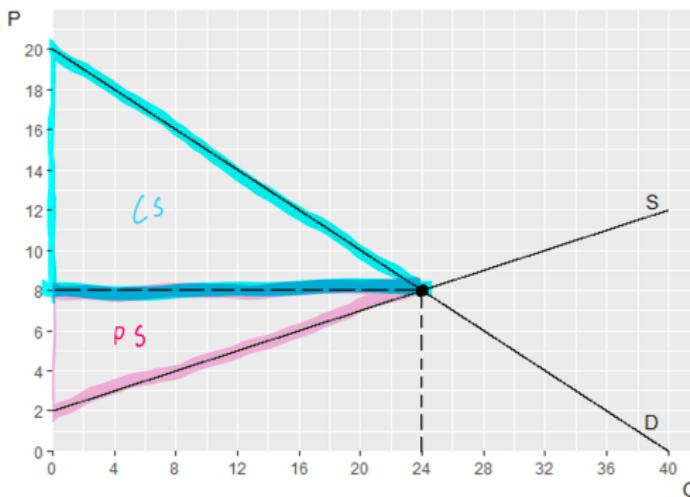
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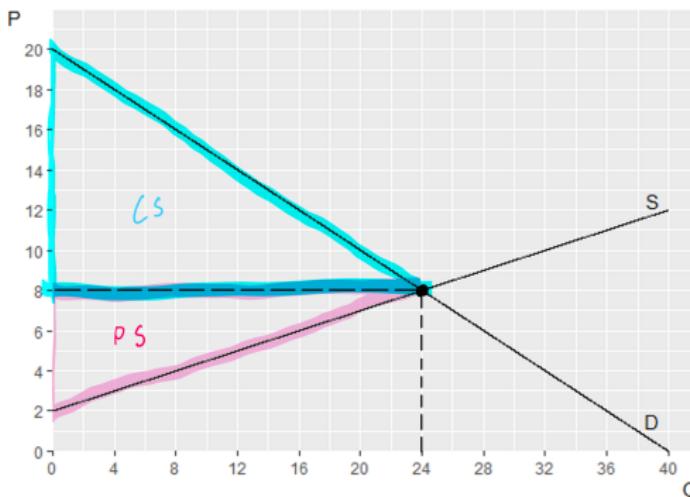
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 - Therefore, $TS = 216$

Example 1 – Price Floor

- ▶ Suppose, to protect producer interests, the league mandates a \$12 price floor on games

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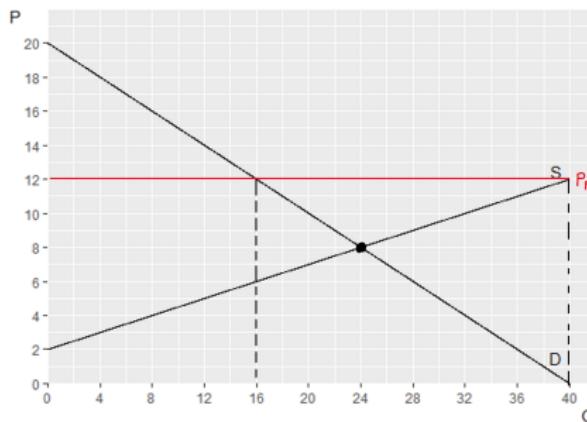
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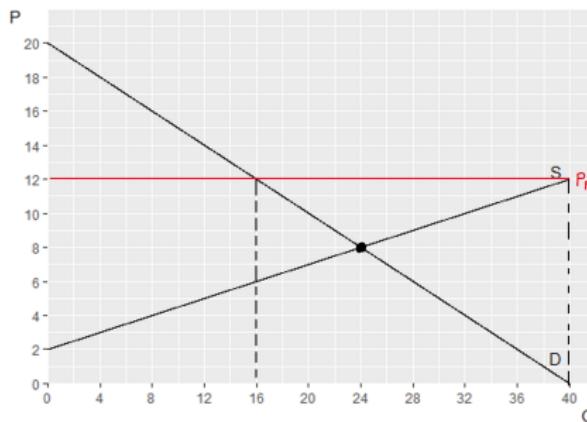
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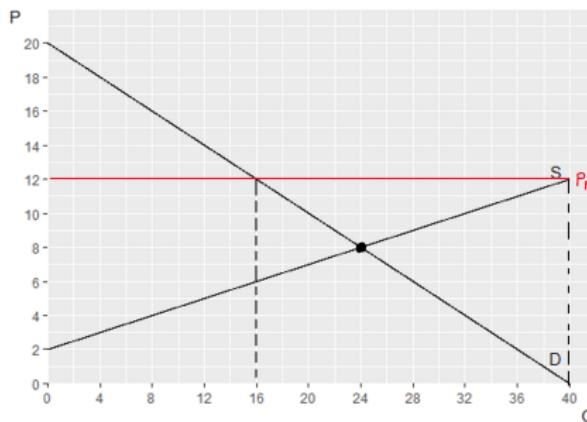
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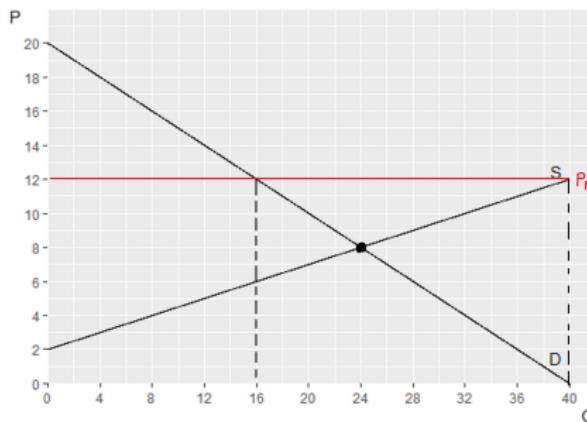
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 - $Q_D = 16, Q_S = 40$

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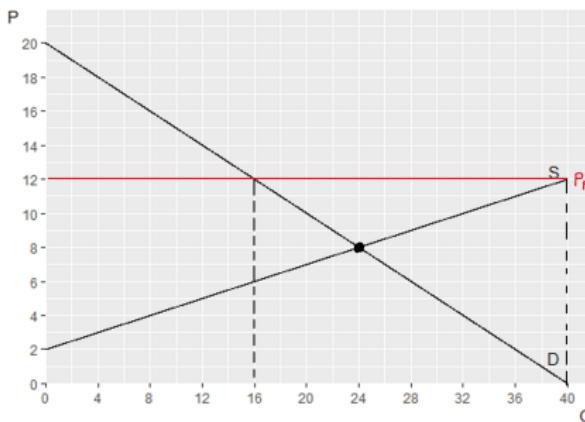
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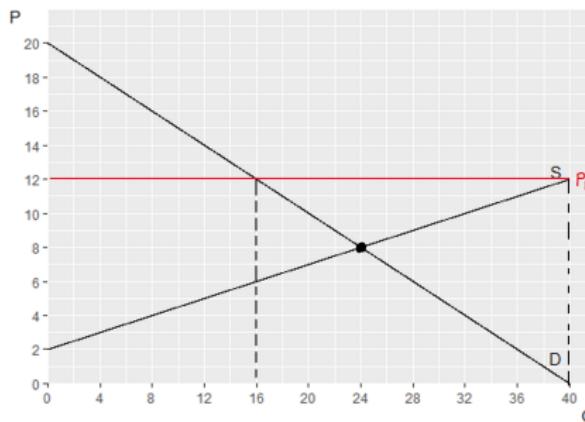
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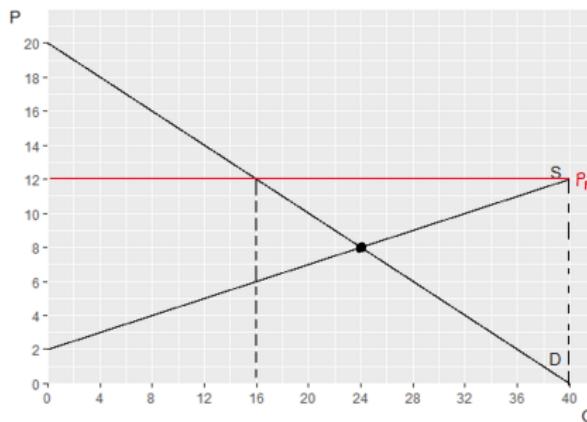
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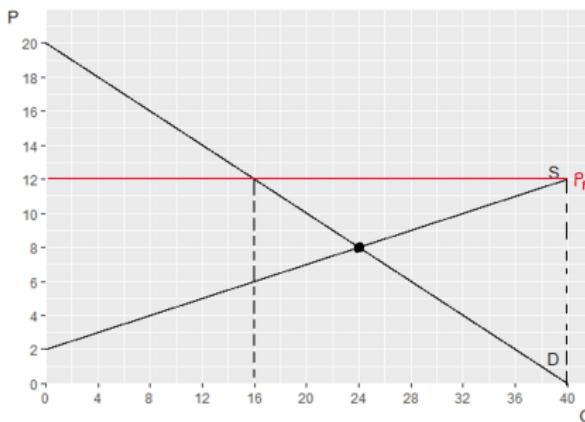
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 - There is a surplus of $40 - 16 = 24$ tickets

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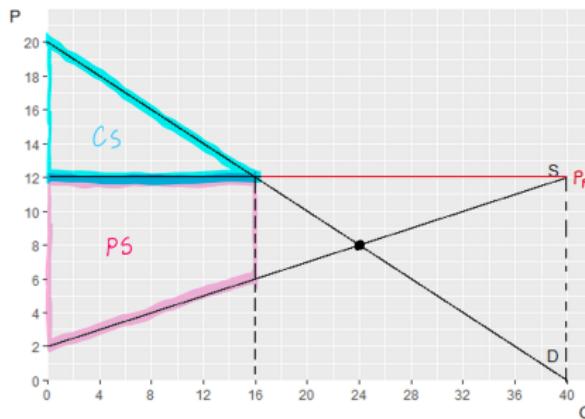
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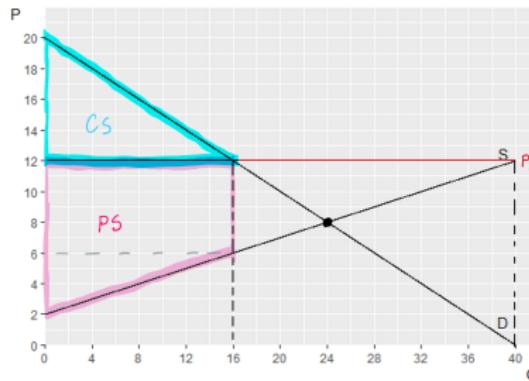
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- ▶ Remember, the market is trading 16 tickets \$12. So, from a quantity of 16, CS is the area between price (\$12) and demand, while PS is the area from supply to price

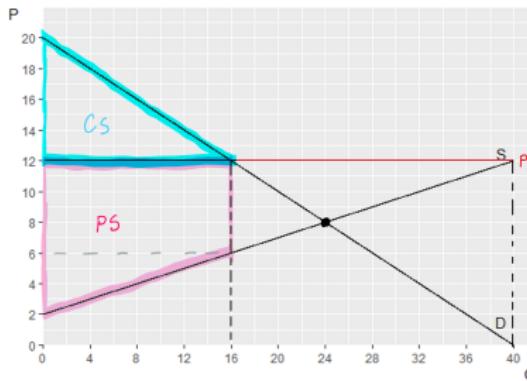
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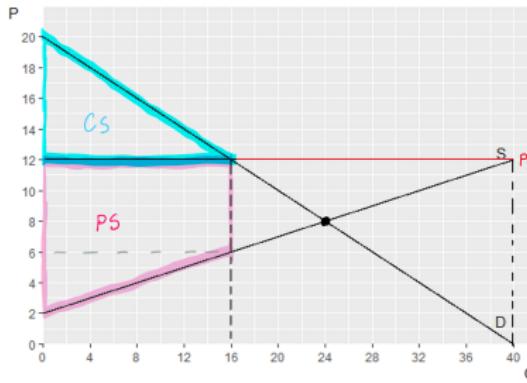
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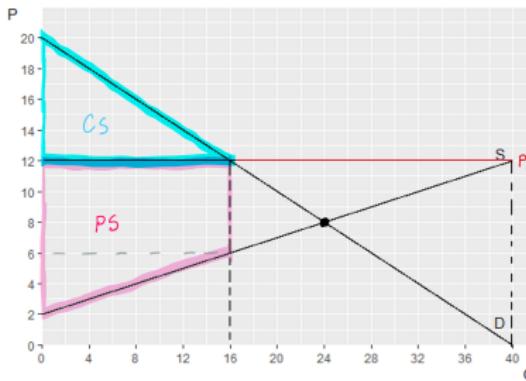
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- ▶ $CS = \frac{1}{2} (16) (20 - 12) = 8 (8) = 64$
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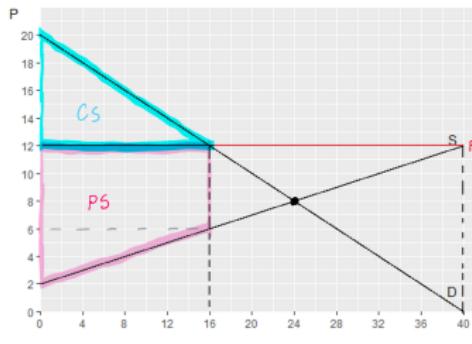
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 - Therefore, TS is now 196

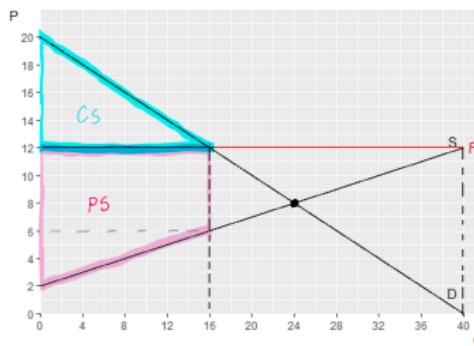
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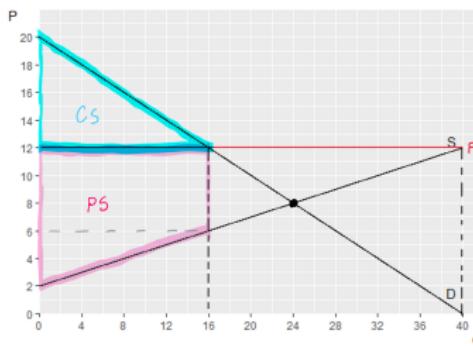
- ▶ What is the change in CS/PS/TS?



- ▶ $\Delta CS = 64 - 144 = -80$

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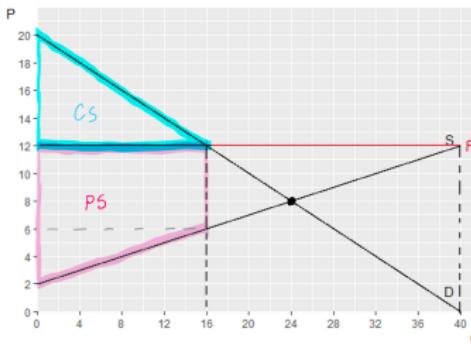
- ▶ What is the change in CS/PS/TS?



- ▶ $\Delta CS = 64 - 144 = -80$
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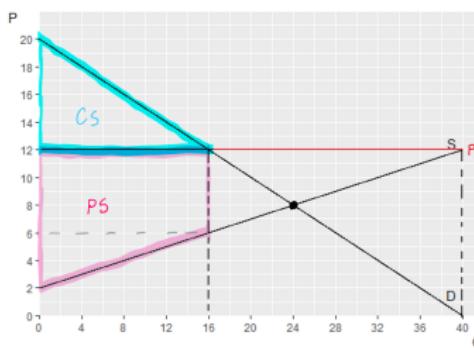
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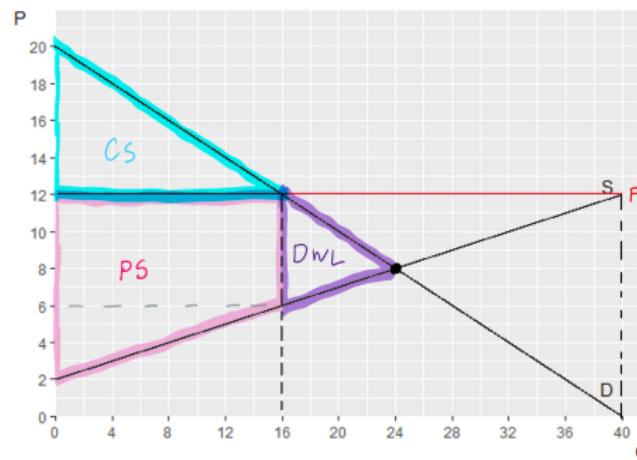
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- ▶ $\Delta CS = 64 - 144 = -80$
- ▶ $\Delta PS = 128 - 72 = 56$
- ▶ $\Delta TS = 176 - 216 = -24$
- ▶ That is: CS fell by 80 and PS grew by 56, so TS fell by a total of 24

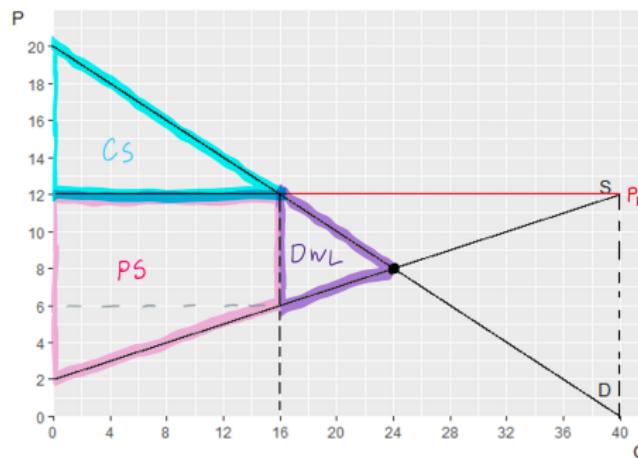
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- ▶ This is called the Dead Weight Loss (DWL), and will be frequent in the diagrams we explore over the next few classes

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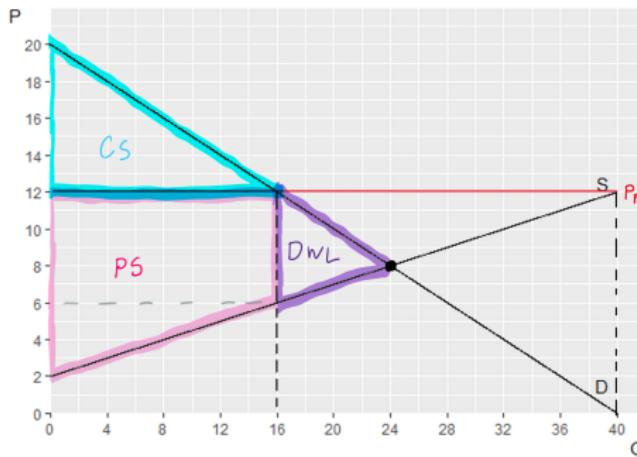
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- ▶ In nearly all of our figures in which deadweight loss occurs, it will be represented by a triangle

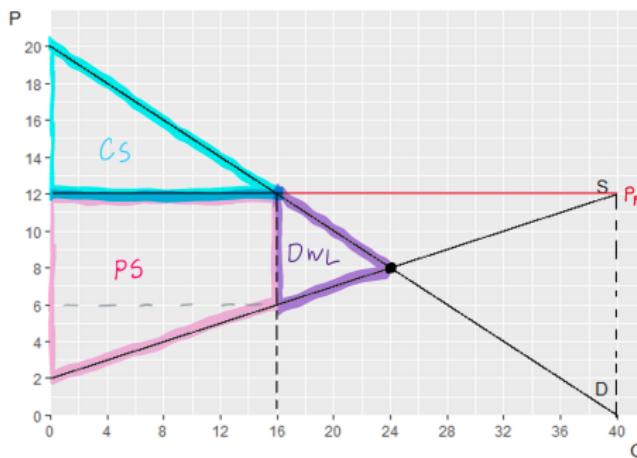
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- ▶ $DWL = \frac{1}{2} (24 - 16) (12 - 6) = 4 (6) = 24$

Example 1: Mutually Elastic Supply

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$$[D] : P = 189 - \frac{1}{10}Q$$

$$[S] : P = 171 + \frac{1}{10}Q$$

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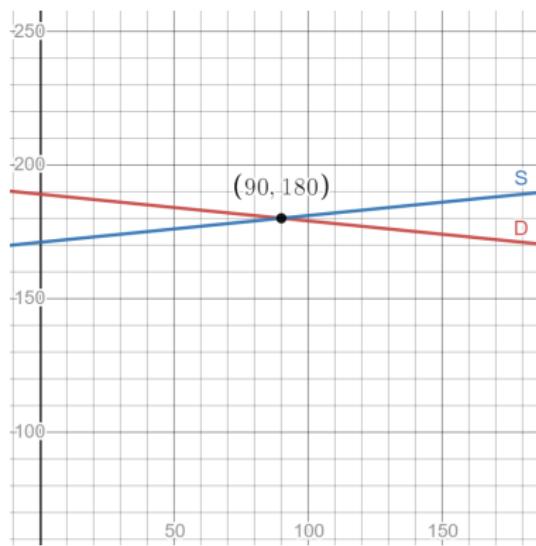
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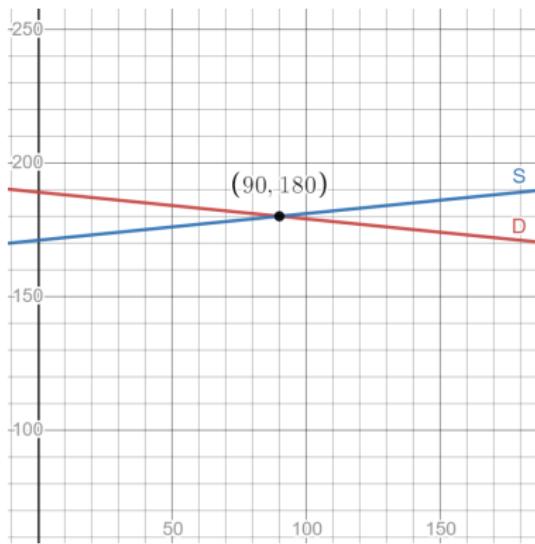
- ▶ What does this look like?

Example 1: Mutually Elastic Supply (Graph)



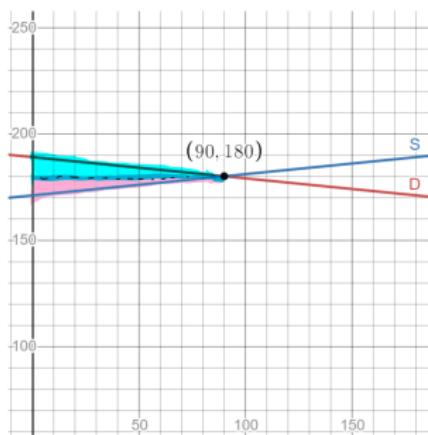
- What do CS and PS look like in the picture above?

Example 1: Mutually Elastic Supply (Graph)



- ▶ What do CS and PS look like in the picture above?
- ▶ Relatively small

Example 1: Mutually Elastic Supply (Computation)

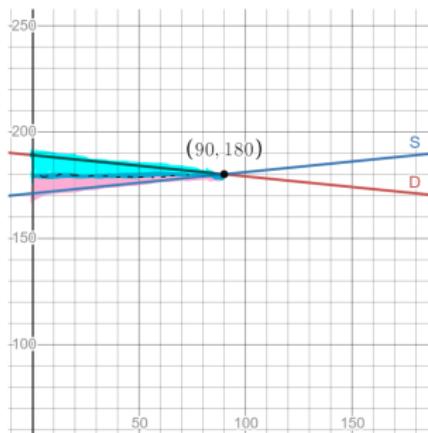


$$[D] : P = 189 - \frac{1}{10}Q$$

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► $CS = \frac{1}{2}(90)(189 - 180) = 405$

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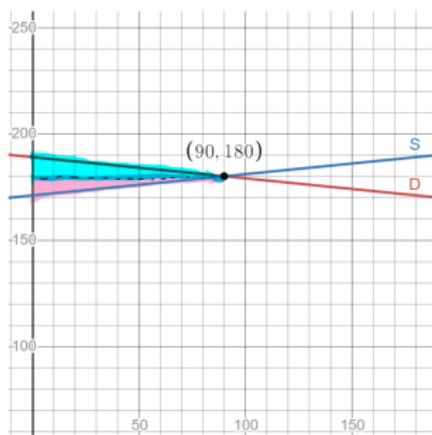


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Example 1: Mutually Elastic Supply (Computation)



$$[D] : P = 189 - \frac{1}{10}Q$$

$$[S] : P = 171 + \frac{1}{10}Q$$

- ▶ $CS = \frac{1}{2}(90)(189 - 180) = 405$
- ▶ $PS = \frac{1}{2}(90)(180 - 171) = 405$
- ▶ What's happening: both consumers and producers are very sensitive to the price of the good: since small deviations cause lots of people to leave, both must agree on a price that does not suit the other greatly

Example 2: Mutually Inelastic Supply

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 - The picture you should have in your head is consumers who really like and value the product, with a high WTP and willingness to adapt to the price, and producers who can cheaply make a good, and really like doing it

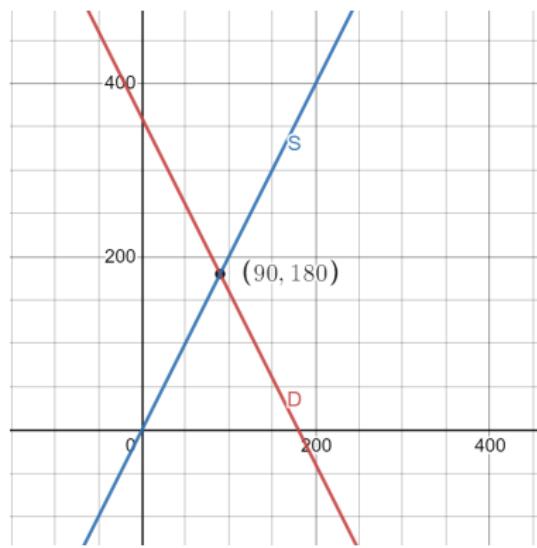
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- ▶ To be explicit,

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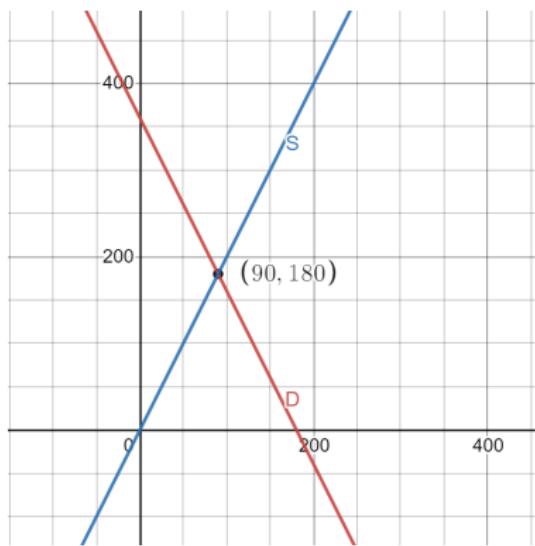
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Example 2: Mutually Inelastic Supply (Graph)



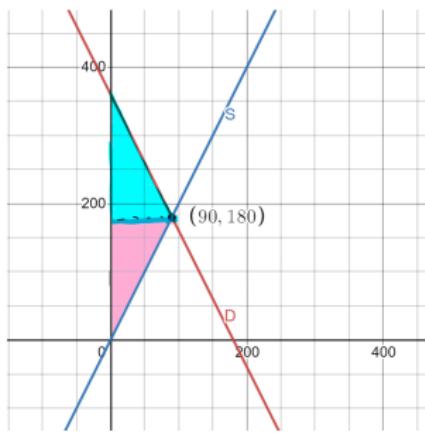
- What do CS and PS look like in the picture above?

Example 2: Mutually Inelastic Supply (Graph)



- ▶ What do CS and PS look like in the picture above?
- ▶ Relatively large, compared to before

Example 2: Mutually Inelastic Supply (Computation)

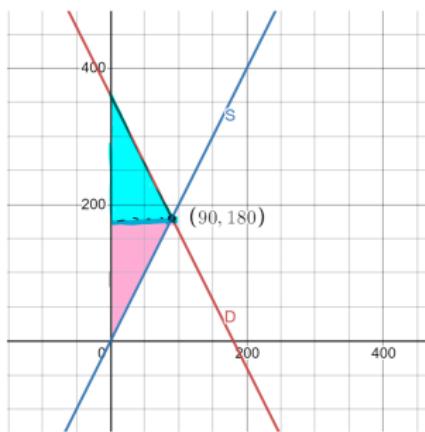


$$[D] : P = 360 - 2Q$$

$$[S] : P = 2Q$$

► $CS = \frac{1}{2} (90) (360 - 180) = 8100$

Example 2: Mutually Inelastic Supply (Computation)

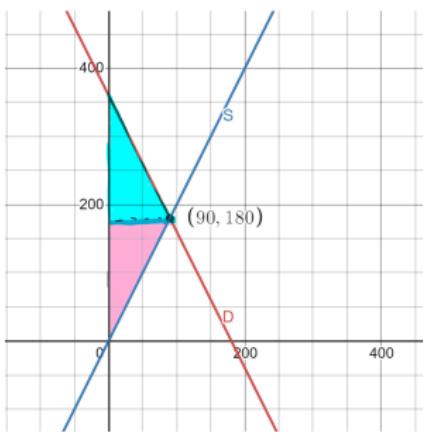


$$[D] : P = 360 - 2Q$$

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- ▶ $CS = \frac{1}{2} (90) (360 - 180) = 8100$
- ▶ $PS = \frac{1}{2} (90) (1800) = 8100$

Example 2: Mutually Inelastic Supply (Computation)



$$[D] : P = 360 - 2Q$$

$$[S] : P = 2Q$$

- ▶ $CS = \frac{1}{2} (90) (360 - 180) = 8100$
- ▶ $PS = \frac{1}{2} (90) (1800) = 8100$
- ▶ What's happening: both consumers and producers are very willing to adapt to prices. Consequently, there is a large gap between their willingness to pay and the agreed upon price

Exercise: Elastic Demand and Inelastic Supply

- ▶ Now consider a market in with elastic demand but inelastic supply

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 - Consumers are relatively sensitive to changes in price, producers are not

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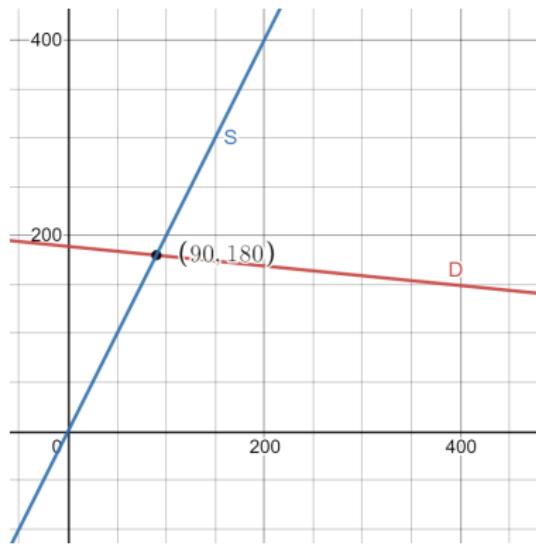
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Exercise: Elastic Demand and Inelastic Supply

- ▶ Now consider a market in with elastic demand but inelastic supply
 - Consumers are relatively sensitive to changes in price, producers are not
 - Suppliers really want to sell, consumers only barely want to buy
- ▶ Let's combine the equations we have already worked with

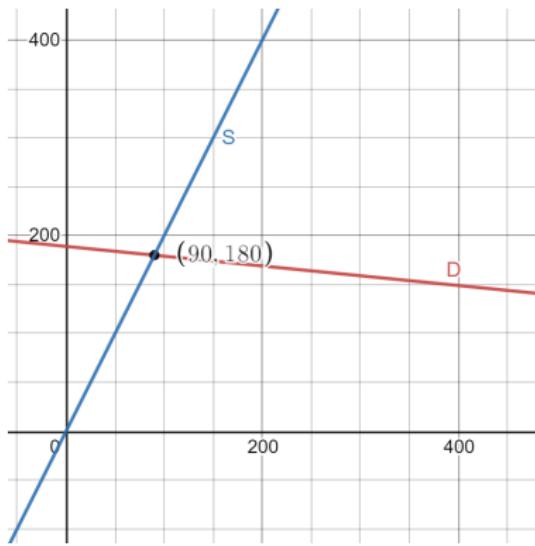
$$[D] : P = 189 - \frac{1}{10}Q$$
$$[S] : P = 2Q$$

Exercise (Graph)



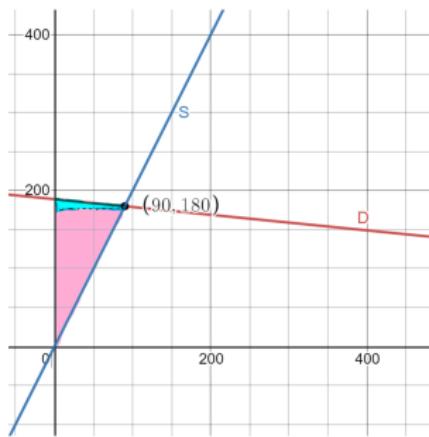
- What do CS and PS look like in the picture above?

Exercise (Graph)



- ▶ What do CS and PS look like in the picture above?
- ▶ CS is relatively large, PS is relatively small

Exercise (Computation)

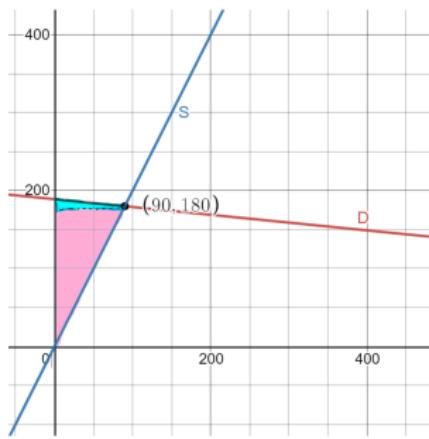


$$[D] : P = 189 - \frac{1}{10}Q$$

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► $CS = 405$

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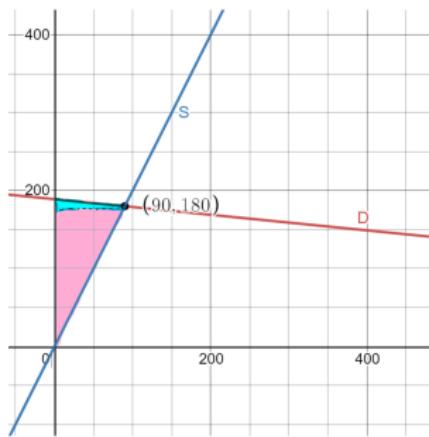


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- ▶ $CS = 405$
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Exercise (Computation)



$$[D] : P = 189 - \frac{1}{10}Q$$

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- ▶ $CS = 405$
- ▶ $PS = 8100$
- ▶ What's happening: producers really want to sell, while consumers are not that jazzed about buying

Takeaway

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 - Inelastic curves should be steep
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 - If you want to compare to equilibria, make them go through the same point
 - For reference: [Desmos from this section](#)
- ▶ I want you to be prepared to see a graph you haven't seen before, make the surplus/elasticity computations, and make qualitative observations

Ex 1: A Price Floor with Opposite Kinds of Elasticity

- ▶ Consider a market with inelastic demand, but inelastic supply:

$$[D] : P = 64 - 4Q$$

$$[S] : P = 31 + \frac{1}{8}Q$$

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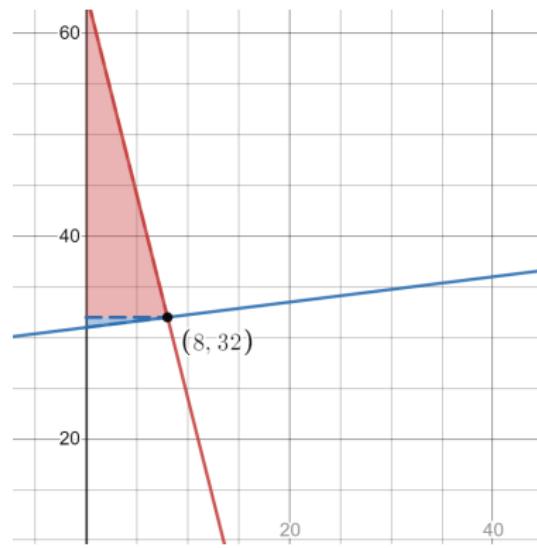
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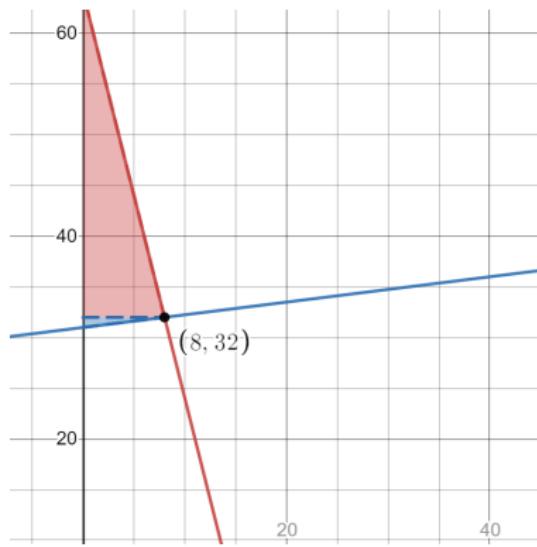
- ▶ Challenge: without looking at the graph given to you in the next slide, compute the equilibrium in this market, as well as CS and PS

Ex 1 (Graph)



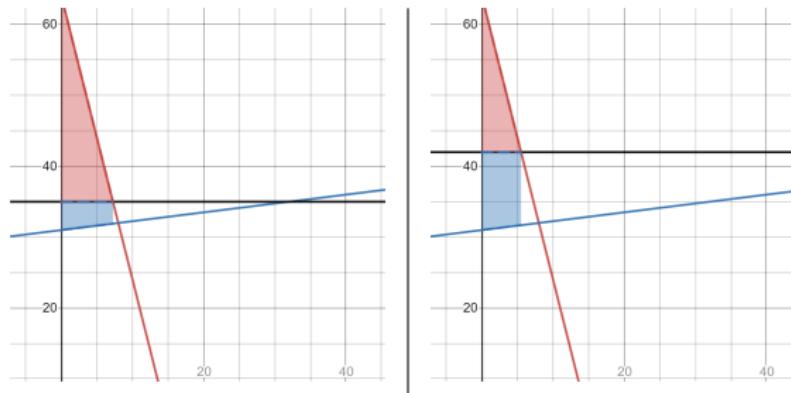
- ▶ $CS = 128, PS = 4$

Ex 1 (Graph)



- ▶ $CS = 128, PS = 4$
- ▶ What happens when we add a price floor?

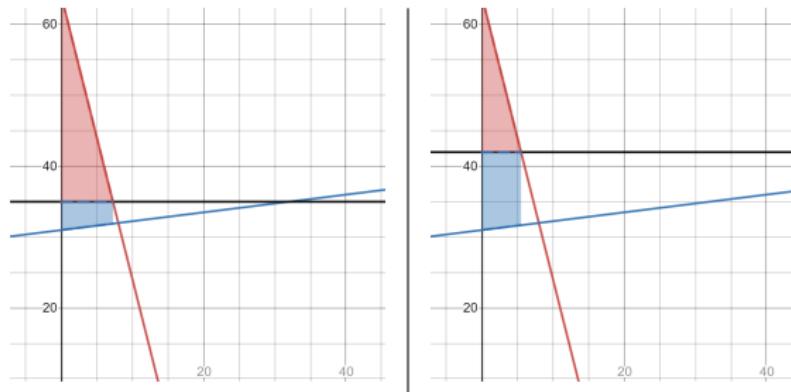
Ex 1 (Floor)



Price floors at \$35 and \$42, resp.

- What does it look like is happening?

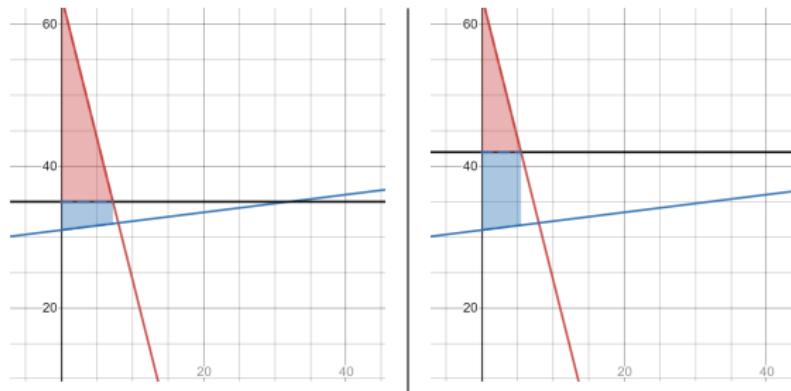
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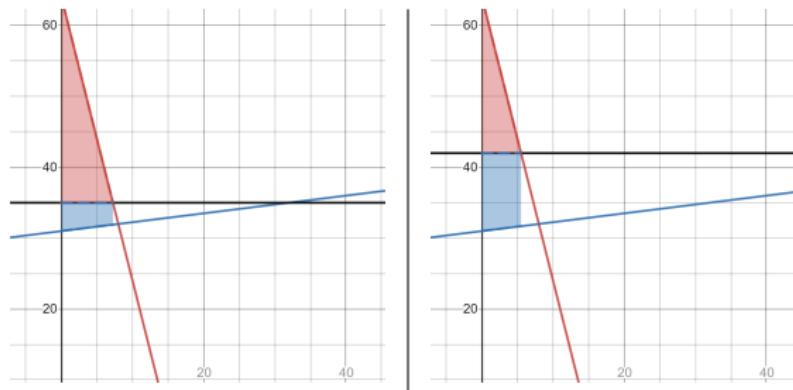
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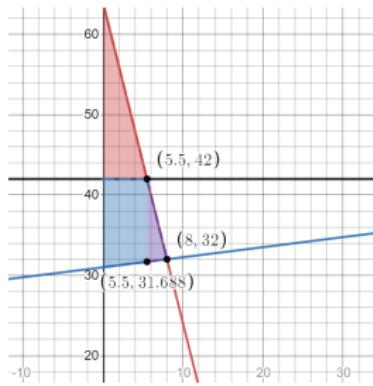


Price floors at \$35 and \$42, resp.

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- ▶ Conversely, since they are insensitive to prices, not many drop out, so much of the surplus goes to producers

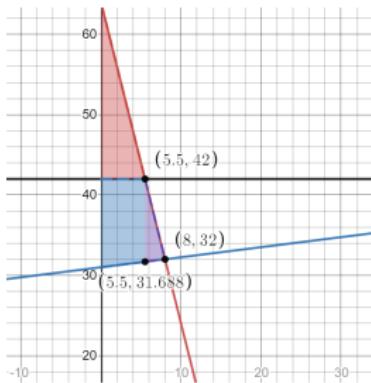
Exercise 1: DWL Calculation

- When there is a price floor of \$42, find DWL:



Exercise 1: DWL Calculation

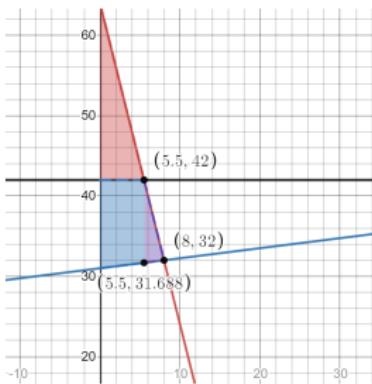
- When there is a price floor of \$42, find DWL:



- $DWL = \frac{1}{2} (8 - 5.5) (42 - 31.688) = 12.89$

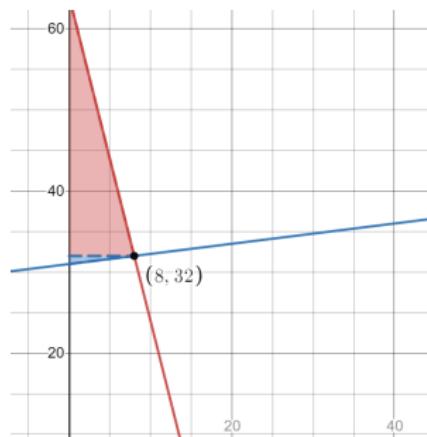
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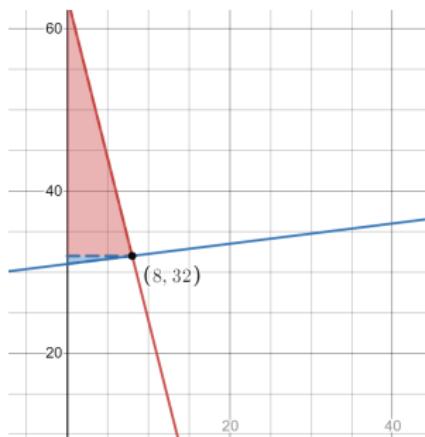
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- If you want to play around with this (it's only set up for price floors, but you should able to visualize surpluses with ceilings): [Ex 1 Graph](#)

Ex 1 – Food for Thought



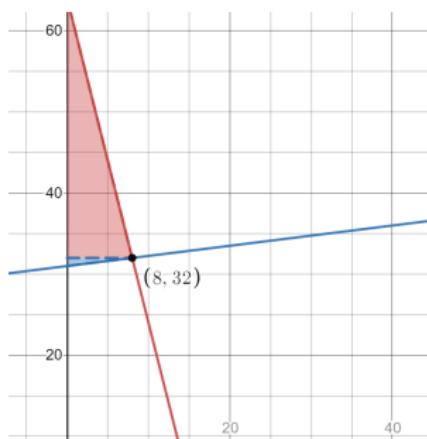
- ▶ What would happen if we instead implemented a price ceiling in this case?

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- ▶ What would happen if we instead implemented a price ceiling in this case?
- ▶ PS will slowly shrink, some of it going to CS, some to deadweight loss

Ex 1 – Food for Thought



- ▶ What would happen if we instead implemented a price ceiling in this case?
- ▶ PS will slowly shrink, some of it going to CS, some to deadweight loss
- ▶ Since producers have relatively low valuations, their PS doesn't have much more to fall. Meanwhile, since they are sensitive to price changes, they will fall out of the market quickly, limiting the growth of consumer surplus

Example 2: A Price Ceiling with Varying Elasticities

- ▶ Consider a market with elastic demand, but inelastic supply:

$$\begin{aligned}[D] : \quad P &= 34 - \frac{1}{4}Q \\ [S] : \quad P &= 8 + 3Q\end{aligned}$$

Example 2: A Price Ceiling with Varying Elasticities

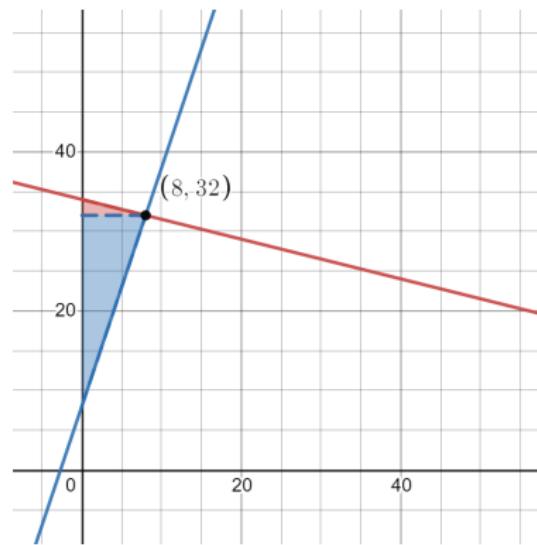
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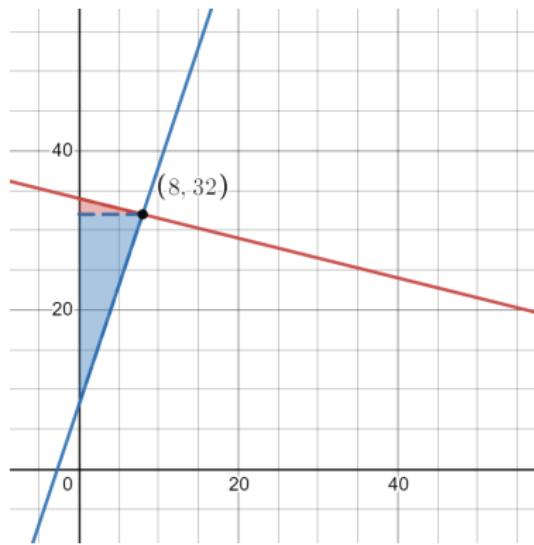
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Ex 2 (Graph)



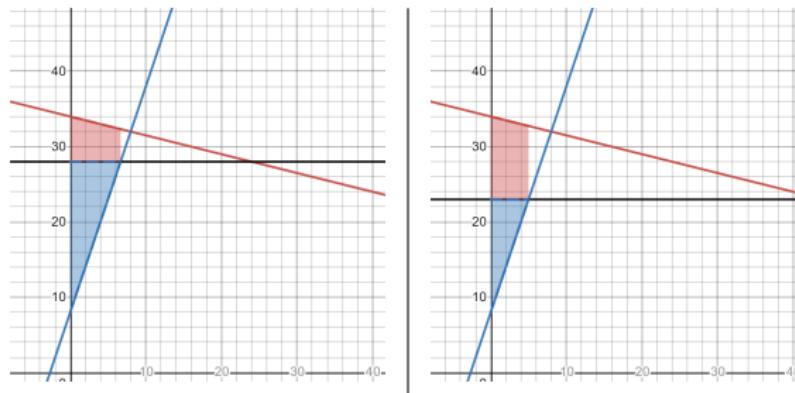
- $CS = 8, PS = 96$

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- ▶ $CS = 8, PS = 96$
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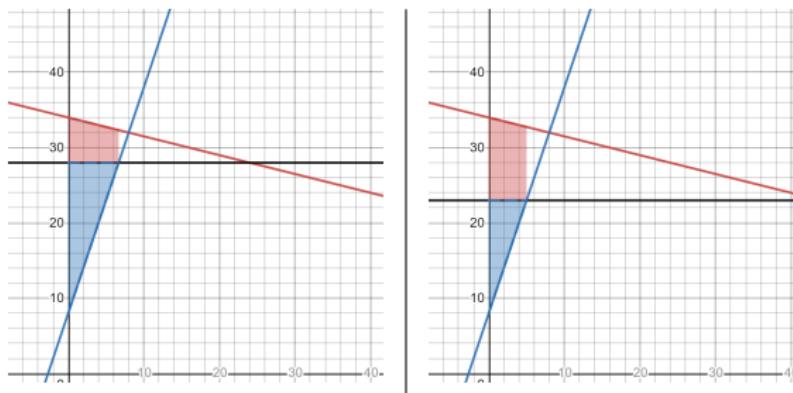
Ex 2 (Floor)



Price ceilings at \$23 and \$28, resp.

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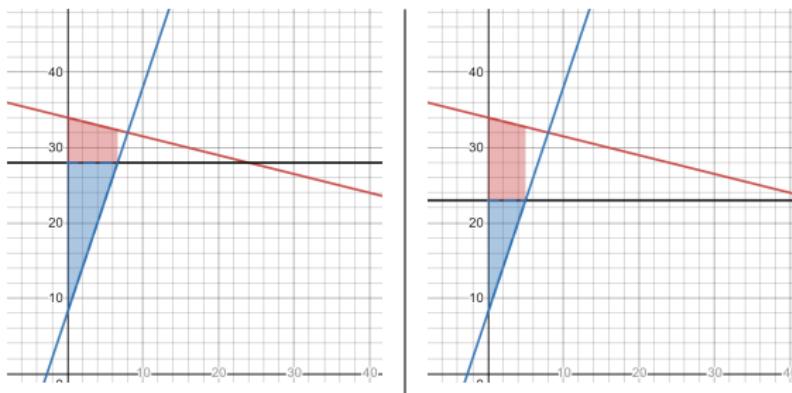
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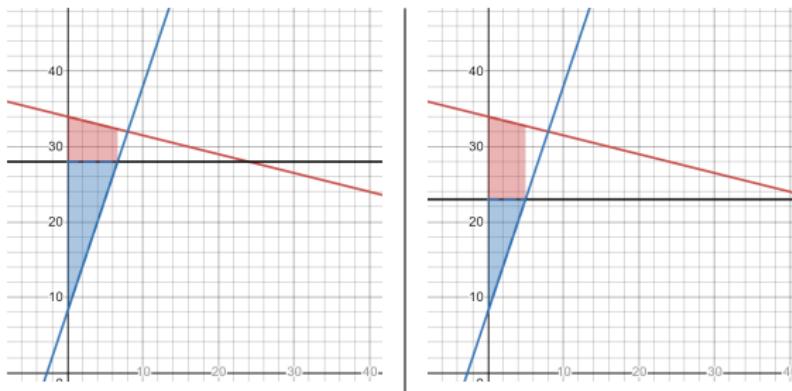
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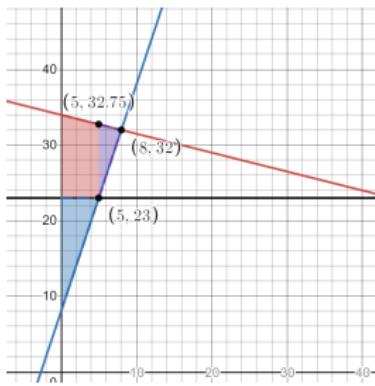


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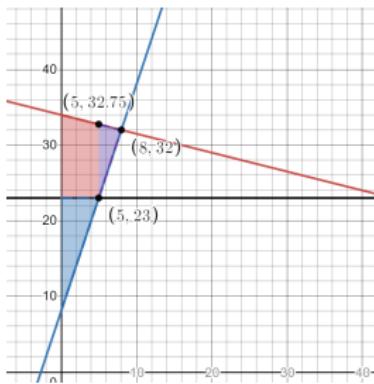
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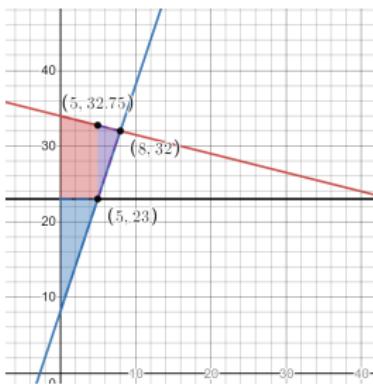
- When there is a price ceiling of \$28, find DWL:



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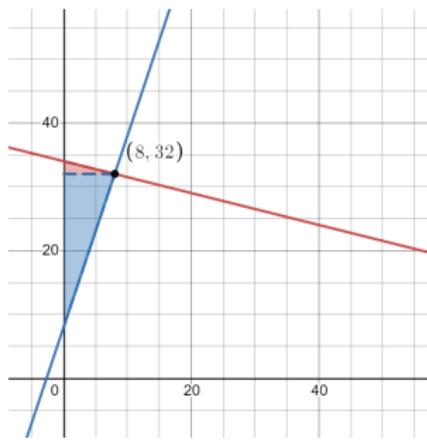
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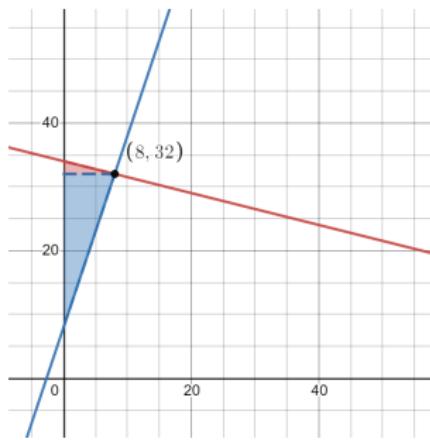
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- ▶ Keep sensitivity to prices in mind, as well as the fact that inelastic demand usually means relatively high valuations/enjoyment for products (similar for supply)
- ▶ Make sure you know how to calculate DWL

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 - I need the finished community note card to be done by this coming Monday night (Tuesday is fine, but I need to make sure everyone has time to approve finishing touches)

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 - One sheet, not front/back

Logistics (cont.)

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 - 30-40 MC questions (probably closer to 40)

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- ▶ At 40 MC questions, 4 free response, managing your 80 minutes will mean $\approx 1.5 \text{ minutes } (\underline{\text{average}})/\text{MC question}$, plus $\approx 5 \text{ minutes per free response question}$

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- ▶ I will announce the specific # MC/FR questions closer to the test, and what the breakdown comes out to

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- How to compute given data/points on graph
- How to interpret
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- Ceteris Paribus

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Basic Overview of Topics (cont.)

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- Identification, including effective/ineffective
- Effect on market, including new price, Q_D , Q_s , and quantity traded

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Resources

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