First Exercise

- Suppose the demand curve is a downward sloping straight line.
- Suppose that the supply curve is a vertical straight line.
- Draw S. and D. curves to show what happens with:
  - a sales tax of $10 per unit paid by buyers.
  - a sales tax of $10 per unit paid by sellers.
- Who bears the burden of the tax?
Sales Tax with a Vertical Supply Curve

Tax paid by Buyers

![Graph showing the effect of a sales tax on supply and demand. The graph plots price paid by buyers against quantity. The supply curve is vertical, indicating that the quantity supplied does not change with price. The tax shifts the demand curve upward, affecting the price paid by buyers.]
• Demand curve shifts down.

• What happens to price?

• What happens to quantity?

• Who effectively pays the tax?

• What happens to Buyers’ profits? What happens to Sellers’ profits?
Sales Tax with a Vertical Supply Curve

Tax paid by Sellers

Price (Paid by Buyer to Seller) vs. Quantity

- Vertical supply curve indicating how sellers pay tax.
- Graph showing the relationship between price and quantity.
• Supply curve ”shifts up”.

• What happens to price?

• What happens to quantity?

• Who effectively pays the tax?

• What happens to Buyers’ profits? What happens to Sellers’ profits?
Second Exercise

- Suppose the demand curve is a downward sloping straight line.
- Suppose that the supply curve is a horizontal straight line.
- Draw S. and D. curves to show what happens with:
  - a sales tax of $10 per unit paid by buyers.
  - a sales tax of $10 per unit paid by sellers.
- Who bears the burden of the tax?
Sales Tax with a Horizontal Supply Curve

Tax paid by Buyers

Graph showing the relationship between price (Paid by Buyer to Seller) and quantity.
Sales Tax with a Horizontal Supply Curve

Tax paid by Sellers
Figure 1—Profits with No Tax

Price of Apples

Bushels of Apples

Buyers’ Profits

Sellers’ Profits

Supply Curve

Equilibrium

Demand Curve
Fig. 2—Profits When Sellers Pay the Tax

- **Price of Apples**
  - Bushels of Apples

- **Sellers’ Profits**
  - Buyers’ Profits

- **New Supply Curve**
- **Old Supply Curve**
- **New Equilibrium**
- **Old Equilibrium**
- **Demand Curve**
Figure 3 – Revenue and Excess Burden, Session 2

- **A** = Buyers’ Profits
- **B** = Sellers’ Profits
- **C** = Tax Revenue
- **D** = Excess Burden

Price of Apples vs. Bushels of Apples
• Total Revenue of buyers is the area under the demand curve to the left of the quantity sold—$500 if there are no taxes, $360 with the sales tax.

• Total Seller Costs is the area under the supply curve to the left of the quantity sold—$202 if there are no taxes, $97 with the sales tax. Total Sales Tax paid by Sellers is $9 \times 15 = $135, so sellers total costs are $232.

• Total Profit of buyers and sellers is Total Revenue of buyers minus Total costs of sellers, including Seller Costs and taxes. This is the area between the supply curve and the demand curve, to the left of the quantity sold.−$298 with no taxes. $128 with the tax.

• Tax reduces total profits by $170. Government collects $135. The amount $170-135=\$35$ is the excess burden of the tax.
Figure 4—A Subsidy to Buyers

Price of Apples

Bushels of Apples

New Demand Curve
Supply Curve
New Equilibrium
Old Equilibrium
Old Demand Curve
Figure 5–A Subsidy to Buyers and a Tax on Sellers

- Old Equilibrium
- New Equilibrium
- Old Demand Curve
- New Demand Curve
- Old Supply Curve
- New Supply Curve