1. Suppose we look at the market for widgets. The demand and supply are given by:

\[ Q_D = 200 - 4P \quad Q_S = 4P \]

a. In the space below plot the supply and demand curves. Make sure to label and number the axes. Nothing tricky, so just put price on the vertical axis and quantity on the horizontal.

b. What is the equilibrium price? $2.5$

c. What is the equilibrium quantity? $100$

d. Suppose we place a 25% excise tax on widgets, i.e., if the price were $10, the firm would have to charge $12.50 (25% more) and give the government $2.50 and keep $10. Please calculate the price consumers would now pay.

e. What would be the quantity purchased by consumers?

f. How much tax would revenue would the government collect per widget? $2.5$

g. What share of the tax is paid by the consumer and what share by the sellers? Show your work.

A pizza shop owner was being audited by the IRS. The deli owner asked, "What is wrong? Why am I being audited?" The IRS auditor replied, "You have got two trips to Europe down as business expenses. What is your explanation?" The pizza shop owner replied, "We deliver!"
2. Peter and Lois Griffin live in Quahog, Rhode Island along with their three children and their dog. Their adjusted gross income is $75,000. Among their expenditures are $7,000 for mortgage interest, $1,000 in political contributions. They paid also $2,500 in state tax to Rhode Island and somehow managed to save $10,000 of their income.

a. Given the Federal Personal Income Tax Table passed below, how much will they owe in taxes. **Show all your work!**

<table>
<thead>
<tr>
<th>If taxable income is over</th>
<th>But not over</th>
<th>The tax is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0</td>
<td>$14,300</td>
<td>10% of the amount over $0</td>
</tr>
<tr>
<td>$14,300</td>
<td>$58,100</td>
<td>$1,430.00 plus 15% of the amount over 14,300</td>
</tr>
<tr>
<td>$58,100</td>
<td>$117,250</td>
<td>$8,000.00 plus 25% of the amount over 58,100</td>
</tr>
<tr>
<td>$117,250</td>
<td>$178,650</td>
<td>$22,787.50 plus 28% of the amount over 117,250</td>
</tr>
<tr>
<td>$178,650</td>
<td>$319,100</td>
<td>$39,979.50 plus 33% of the amount over 178,650</td>
</tr>
<tr>
<td>$319,100</td>
<td>no limit</td>
<td>$86,328.00 plus 35% of the amount over 319,100</td>
</tr>
</tbody>
</table>

Standard Deduction = $9,700. Personal Exemption = $3,100  Family Guy on at 11:30.

b. Calculate their effective tax rate.

\[
\text{Effective Tax Rate} = \frac{\text{Tax}}{\text{Gross Income}} = \frac{7,500}{75,000} = 0.10
\]

c. Calculate their marginal tax rate.

\[
\text{Marginal Tax Rate} = \frac{\text{Change in Tax}}{\text{Change in Income}} = \frac{500}{1,000} = 0.50
\]

d. Suppose we change one thing. Let's assume the family owns 1,000 shares of the Patriot Ale brewing company and that the value of the stock rose by $500, but they didn't sell it. Please calculate the change in their tax liability.

Gain not realized. So tax liability does not change.

Peter: Don't worry I got an idea. An idea so smart my head would explode if I even began to know what I was talking about.
3. a. Suppose that Homer has income of $100 per week. He buys only two goods, Duff Beer and Twinkies. Let’s suppose the beer costs $4 and Twinkies $1. Draw a budget line to illustrate what Homer can buy. Please put beer on the vertical axis and Twinkies on the horizontal. Label the budget line AB.

b. Draw an indifference curve that shows him spending half of his income on each good. Label the indifference curve U1.

c. Let us suppose that the government places a $3 excise tax on Twinkies so they now cost $4 with tax. Label the budget line CD.

d. Draw a new possible indifference curve for Homer. Label it U2.

e. How much total tax revenue will the government collect from Homer in total, not just per Twinkie?

\[ \text{About 12 Twinkies so } 12 \times 3 = 36 \]

f. Calculate the excess burden and show your work.

\[ \text{we see } r = 11 \text{ AB. He is } 855 \text{ less happy } (100 - 45) \]

\[ \text{But paid } 36 \text{ in taxes. Excess burden is } 55 - 56 = 9 \]

Read the ingredients on the side of a Twinkies box sometime. Humans put those ingredients into those foul little cakes. So are those foul little cakes therefore natural? The nuclear bomb — natural? Synthetic drugs — natural? If it’s all natural then why does the word unnatural even exist? Paging Mr. Orwell!
4. Suppose we look at two school districts in Ohio; East Rutabaga and Upper Albany. Suppose you are given the following information. For simplicity, we will assume each district has only one student.

<table>
<thead>
<tr>
<th>School District</th>
<th>East Rutabaga</th>
<th>Upper Albany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Property (per Pupil)</td>
<td>$50,000</td>
<td>$300,000</td>
</tr>
<tr>
<td>Taxable Property (per Pupil)</td>
<td>33,520</td>
<td>90,500</td>
</tr>
<tr>
<td>Millage Rate</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Local Tax Dollars (per Pupil)</td>
<td>$6,17,500 - $5,250</td>
<td>$21,000 - $100,500</td>
</tr>
</tbody>
</table>

a. Fill in the blanks in the table. Remember, Ohio does not place a tax on 100% of the value of property.

b. Let us suppose that the very highest tax that East Rutabaga would consider is 40 mills. How much money would they raise at this higher rate?

\[ 40 \text{ mills} = \frac{40}{100} \times 17,500 = 700 \]

First, we calculate the taxable property value.

\[ \text{Taxable Property} = 33,520 - 90,500 = 5,250 \]

c. In the space to the right, show the budget line that reflects the possibilities between in terms of money kept and money for schools. Take a tax rate of 0 mills and 40 mills as the two extreme possibilities. Label and number the axes.

d. Draw an indifference that shows East Rutabaga choosing the amount of taxes for schools that would come from a 30 mill tax.

\[ 30 \text{ mills} = \frac{30}{100} \times 17,500 = 5,250 \]

e. Suppose Ohio adopts a Foundation formula similar to the one that was presented in class.

\[ \text{Guarantee} = $4,000 - (t^*) \times (\text{Property tax base per pupil}) \]

Where \( t^* = 23 \) mills

\[ 4,000 - 2.32 (17,500) = 4,000 - 40,250 = 3597.50 \]

How much would the East Rutabega school district receive from the State of Ohio?

f. In total, how many dollars would East Rutabega have to spend on its student now?

\[ \text{Actual tax of own} = 525 + 3597.50 = 4122.50 \]

g. Is this an example of a matching grant? Explain?

No. As East Rutabaga changes the amount they spend, it does not affect the State of Ohio contribution.
Multiple Choice. Two points each. There is only one correct answer.

5. Suppose we lower taxes by $100 on the rich and cut transfer payments to the poor. The tax cut stimulates the economy a bit and we only need to cut the transfer payments by $75. The rich gain 100 utils, but the poor lose 150 utils from this change.
   a. A Rawlsian and a Utilitarian would both support this change.
   b. Neither a Rawlsian nor a Utilitarian would support this change.
   c. A Rawlsian would support the change, but not a Utilitarian
   d. A Utilitarian would support the change, but a Rawlsian.

6. Government expenditures as a share of GDP are smallest in
   a. France.
   b. Germany
   c. Sweden
   d. United States

7. In an Edgeworth Box with two people and two goods
   a. there is only one Pareto efficient point
   b. the indifference curves for the two people never cross
   c. the marginal rate of substitution for the two people are never the same
   d. none of the above.

8. Which of the following is a pure public good?
   a. a polio vaccine shot
   b. Yellowstone Park
   c. the Ohio Turnpike
   d. national defense.

9. Which of the following will usually not result in the marginal social benefit of a product being equal to the marginal social cost?
   a. government regulation
   b. a Pigouvian tax
   c. an auction of pollution permits
   d. all of the above will result in marginal social benefit equaling marginal social cost.

10. Which of the following is not a market failure, as defined in this class?
    a. the under use of merit goods
    b. incomplete markets
    c. lack of perfect information
    d. lack of perfect competition.

11. Milton Friedman would argue the government has no business
    a. providing national defense.
    b. providing for those that cannot support themselves.
    c. running toll roads
    d. making the rules for society.
12. Tradeable permits for pollution
   a. have never been tried in the United States
   b. can reduce pollution, but not to the socially optimal levels.
   c. would allow firms to pay for the rights to increase pollution.
   d. in general are more costly than regulation to achieve a given level of pollution reduction.

13. Which group gets a better return on their social security contributions?
   a. married people as opposed to single people
   b. high income people as opposed to low income people
   c. men compared to women
   d. married and high income people as well as men all get higher rates of return.

14. The distribution of income in the United States
   a. has grown more equal in recent decades.
   b. tends to be more unequal than other developed nations.
   c. shows a reduced Gini coefficient in recent decades.
   d. has a Lorenz curve that has grown closer to the 45 degree line in recent decades.

15. Which of the following statements is true about Medicare?
   a. There is no co-pay for doctors visits.
   b. There is no limit on the earnings used to calculate the tax base for Medicare.
   c. It is funded out of a payroll tax rather than general revenues.
   d. It stopped using Diagnosis Related Groups in 1996.

16. Which of the following has a substitution effect?
   a. Food Stamps on food purchases.
   b. Medicaid on health care purchases.
   c. Medicare on health care purchases.
   d. All of the above have a substitution effect.

17. The Social Discount Rate in a Cost-Benefit Analysis
   a. was recently increased for a seventh time by the Fed.
   b. results in a greater likelihood of building a project when it is set low.
   c. has a greater impact on future benefits, the lower rate it is set at.
   d. None of the above.

18. Which of the following statements about health care is FALSE?
   a. The price index for health care has risen at twice the overall rate of inflation in recent years.
   b. The United States devotes a larger share of GDP to health care than other developed Western nations.
   c. Health insurance creates a moral hazard problem.
   d. People over 65 in the United States are given the lowest priority for government paid knee replacements and have to wait up to five years.

How many Keynesian economists does it take to change a light bulb? All of them. Because then you will generate consumption and employment and shift the Aggregate Demand to the right.
19. The official poverty line in the United States is NOT
   a. adjusted for family size.
   b. adjusted annually for inflation
   c. adjusted for the local cost of living
   d. it does in fact adjust for all of these.

20. Since its inception, the evidence indicates that
   a. social security has decreased savings and reduced the labor supply of the elderly.
   b. social security has had no effect on savings and reduced the labor supply of the elderly.
   c. social security has decreased savings and had no effect on the labor supply of the elderly.
   d. social security has had no effect on savings or the labor supply of the elderly.

21. Under the Personal Income Tax, capital gains
   a. are only taxed when they are realized
   b. are indexed for inflation.
   c. a & b are both true
   d. a & b are both false.

22. Which of the following taxes has NO excess burden?
   a. excise taxes.
   b. income taxes.
   c. taxes on elastic goods.
   d. lump sum (head) taxes.

23. Which of the following is the primary reason for the excise tax on gasoline?
   a. user fee.
   b. vertical equity
   c. source of general government revenue
   d. sumptuary (sin) tax

24. Under the current United States Corporate Income taxes.
   a. Investments are depreciated rather than expensed.
   b. A credit is given to dividend recipients for the corporate income tax paid on their dividends.
   c. Interest payments out by the corporation are not treated as a cost.
   d. The highest marginal rate is 17.2%.

25. The current investment tax credit under the corporate income tax is
   a. 0%
   b. 7%
   c. 10%
   d. available only to firms in their first three years of existence.

How many free market economists does it take to screw in a light bulb? None, they let the market do it.
26. The Tiebot model suggests
   a. decreases in tax rates lead to increases in tax revenue.
   b. people will move to communities with their preferred level of services and taxes.
   c. social security depresses the level of savings by 30%.
   d. the corporate income tax discourages the use of the corporate form of business.

27. Which of the following is subject to a property tax in Ohio?
   a. OWU dorms
   b. OWU student cars. (assume they are Ohio residents.)
   c. Both a & b are taxable
   d. Neither a nor b is taxable.

28. An excise tax will be paid mostly by consumers when
   a. both supply and demand are elastic
   b. both supply and demand are inelastic
   c. supply is inelastic and demand elastic
   d. supply is elastic and demand is inelastic.

29. A credit-invoice Value Added Tax
   a. is progressive.
   b. discourages savings.
   c. gives firms an incentive to keep accurate tax records
   d. none of the above.

30. The Hall-Rabushka Tax flat proposal
   a. would tax capital gains when realized
   b. would discourage saving
   c. would require consumers to keep detailed records of actual consumption expenditures.
   d. None of the above.

31. A federal general retail sales tax
   a. would discourage savings
   b. is progressive
   c. would be hard to collect if rates exceeded 10%
   d. all of the above.

32. The evidence presented in *Taxing Ourselves* shows that
   a. time periods with high top bracket marginal tax rates are associated with low levels of productivity.
   b. Nations with high taxes tend to have high levels of real GDP/capita growth
   c. Decreases in tax rates tend to increase tax revenue.
   d. None on the above.
33. In general consumption taxes tend to
   a. be regressive
   b. encourage savings
   c. both a & b are true
   d. neither a nor b is true

34. Which of the following is not indexed for changes in prices?
   a. social security benefits
   b. capital gains
   c. the tax brackets under the personal income tax.
   d. All of these are indexed.

35. The “lock-in” effect
   a. causes individuals to sell assets
   b. causes corporations to use debt financing
   c. causes individuals to work less as taxes rise.
   d. None of the above.