

## Lesson 28: Federal Income Tax

### Classwork

#### Important Tax Tables for this Lesson

*Exemption Deductions for Tax Year 2013*

Exemption Class	Exemption Deduction
Single	\$3,900
Married	\$7,800
Married with 1 child	\$11,700
Married with 2 children	\$15,600
Married with 3 children	\$19,500

*Standard Deductions Based Upon Filing Status for Tax Year 2013*

Filing Status	Standard Deduction
Single	\$6,100
Married filing jointly	\$12,200

*Federal Income Tax for Married Filing Jointly for Tax Year 2013*

If taxable income is over:	But not over--:	The tax is:	Plus the Marginal Rate	Of the amount over:
\$0	\$17,850	10%		\$0
\$17,850	\$72,500	\$1,785.00	15%	\$17,850
\$72,500	\$146,400	\$9,982.50	25%	\$72,500
\$146,400	\$223,050	\$28,457.50	28%	\$146,400
\$223,050	\$398,350	\$49,919.50	33%	\$223,050
\$398,350	\$450,000	\$107,768.50	35%	\$398,350
\$450,000 +		\$125,846.00	39.6%	\$450,000

**TAXABLE INCOME:** The U.S. government considers the *income* of a family (or individual) to include the sum of any money earned from a husband's or wife's jobs, and money made from their personal businesses or investments. The taxes for a household (i.e., an individual or family) are not computed from the income; rather, they are computed from the household's taxable income. For many families, the household's *taxable income* is simply the household's income minus exemption deductions and minus standard deductions:

$$(\text{taxable income}) = (\text{income}) - (\text{exemption deduction}) - (\text{standard deduction})$$

All of the problems we will model in this lesson will use this equation to find a family's taxable income. The only exception is if the family's taxable income is less than zero, in which case we will say that the family's taxable income is just \$0.

Use this formula and the tables above to answer the following questions about taxable income:

### Exercise 1

Find the taxable income of a single person with no kids, who has an income of \$55,000.

### Exercise 2

Find the taxable income of a married couple with two children, who have a combined income of \$55,000.

### Exercise 3

Find the taxable income of a married couple with one child, who has a combined income of \$23,000.

**Federal Income Tax and the Marginal Tax Rate:** Below is an example of how to compute the federal income tax of a household using the Federal Income Tax table above.

### Example 1

Compute the Federal Income Tax for the situation described in Exercise 1 (a single person with no kids making \$55,000).

From the answer in Exercise 1, the taxable income is \$45,000. Looking up \$45,000 in the tax table above, we see that \$45,000 corresponds to the second row because it is between \$17,850 and \$72,500:

If taxable income is over:	But not over:	The tax is:	Plus the Marginal Rate	Of the amount over:
\$17,850	\$72,500	\$1,785.00	15%	\$17,850

To calculate the tax, add \$1,785 plus 15% of the amount of \$45,000 that is over \$17,850. Since  $45,000 - 17,850 = 27,150$ , and 15% of 27,150 is \$4,072.50, the total federal income tax on \$45,000 of taxable income is \$5,857.50.

### Exercise 4

Compute the Federal Income Tax for a married couple with two children making \$127,800.

Taxpayers sometimes misunderstand *marginal tax* to mean: “If my taxable income is \$100,000, and my marginal tax rate is 25%, my federal income taxes are \$25,000.” This statement is not true—they would not owe \$25,000 to the federal government. Instead, a marginal income tax charges a progressively higher tax rate for successively greater levels of income. Therefore, they would really owe:

- 10% on the first \$17,850, or \$1,785 in taxes for the interval from \$0 to \$17,850;
- 15% on the next \$54,650, or \$8,197.50 in taxes for the interval from \$17,850 to \$72,500;
- 25% on the last \$27,500, or \$6,875.00 in taxes for the interval from \$72,500 to \$100,000;

for a total of \$16,857.50 of the \$100,000 of taxable income. Thus, their *effective federal income tax rate* is 16.8575%, not 25% as they claimed. Note that the tax table above incorporates the different intervals so that only one calculation needs to be made (the answer to this problem is the same as the answer in Exercise 5).

**Exercise 5**

Create a table and a graph of federal income tax versus income for a married couple with two children between \$0 of income and \$500,000 of income.

**Exercise 6**

Interpret and validate the graph you created in Exercise 5. Does your graph provide an approximate value for the federal income tax you calculated in Exercise 4?

**Exercise 7**

Use the table you created in Exercise 5 to report on the effective federal income tax rate for a married couple with two children, who makes:

- a. \$27,800
  
  
  
  
  
  
  
  
  
  
- b. \$45,650
  
  
  
  
  
  
  
  
  
  
- c. \$500,000

## Problem Set

Use the formula and tax tables provided in this lesson to perform all computations.

1. Find the taxable income of a married couple with two children, who have a combined income of \$75,000.
2. Find the taxable income of a single person with no children, who has an income of \$37,000.
3. Find the taxable income of a married couple with three children, who have a combined income of \$62,000.
4. Find the federal income tax of a married couple with two children, who have a combined income of \$100,000.
5. Find the federal income tax of a married couple with three children, who have a combined income of \$300,000.
6. Find the effective federal income tax rate of a married couple with no children, who have a combined income of \$34,000.
7. Find the effective federal income tax rate of a married couple with one child who have a combined income of \$250,000.
8. The latest report on median household (family) income in the United States is \$50,502 per year. Compute the federal income tax and effective federal income tax rate for a married couple with three children, who have a combined income of \$50,502.
9. Extend the table you created in Exercise 6 by adding a column called, "Effective federal income tax rate." Compute the effective federal income tax rate to the nearest tenth for each row of the table, and create a graph that shows effective federal income tax rate versus income using the table.