Worksheet: Calculating Marginal vs. Average Taxes

Worksheet, with answers (Teacher Copy)

Federal Tax Brackets and Rates in 2011 for Single Persons

<table>
<thead>
<tr>
<th>From:</th>
<th>To:</th>
<th>Taxed at Marginal Rate of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0</td>
<td>$8,500</td>
<td>10%</td>
</tr>
<tr>
<td>$8,501</td>
<td>$34,500</td>
<td>15%</td>
</tr>
<tr>
<td>$34,501</td>
<td>$83,600</td>
<td>25%</td>
</tr>
<tr>
<td>$83,601</td>
<td>$174,400</td>
<td>28%</td>
</tr>
<tr>
<td>$174,401</td>
<td>$379,150</td>
<td>33%</td>
</tr>
<tr>
<td>$379,151+</td>
<td>35%</td>
<td></td>
</tr>
</tbody>
</table>

Directions: Answer the following questions using the 2011 U.S. marginal income tax rates for a single individual.

If Jaime earns $10,000 from a job that he works after school and during the summer, how much federal income tax does he owe given the table above?

\[ (8,500 \times 0.10) + (10,000 - 8,500 \times 0.15), \text{ or} \]
\[ (850 + 225) = 1,075 \text{ owed in taxes} \]

What is Jaime’s marginal tax rate, that is on the highest dollar?

15%. This means that Jaime is in the “15% tax bracket.”

What is Jaime’s average tax rate?

This is \( \frac{1,075}{10,000} = 10.75\% \). Jaime’s average tax rate (liability) is less than is marginal tax rate because not every dollar of income was taxed at the highest rate. The first $8,500 was taxed at 10% and the next $1,500 was taxed at 25%.

Suppose the personal exemption for Jaime is $3,700. How much federal tax would he owe?

\[ \text{Taxable income} = (10,000 - 3,700) = 6,300 \]

How does this change Jaime’s marginal tax rate? Average tax rate? How much taxes does he now owe?
Jaime’s marginal tax rate is now 10% for all of his taxable income. 
($6,300 \times .10) = $630 owed in taxes.
Jaime’s new average tax rate is = $630/$6,300 or 10%, equal to his marginal rate because all of his taxable income is in the lowest tax bracket.

If Tameka earns $50,000 from her job as an accountant, how much federal income tax does she owe based on the above table?

- Tameka’s first $8,500 is taxed at 10%
- Tameka’s next (34,500 - $8,500) or $26,000 is taxed at 15%
- Tameka’s last (50,000 - $34,500) or $15,000 is taxed at 25%

($8,500 \times .10) + ($26,000 \times .15) + ($15,000 \times .25)
($850 + $3,900 + $3,875) = $8,625 owed in taxes

What is Tameka’s marginal tax rate, that is, on the highest dollar?

25%. This means that Jaime is in the “25% tax bracket.”

What is Tameka’s average tax rate?

This is $8,625 ÷ $50,000 = 17.25%. Tameka’s average tax rate (liability) is less than is marginal tax rate because not every dollar of income was taxed at the highest rate. The first $8,500 was taxed at 10%, the next $26,000 was taxed at 25%, and the final $3,875 was taxed at 25%.

Suppose the personal exemption for Tameka is $3,700 for herself and $3,700 for each of her 3 children. How much federal tax would he owe?

Taxable income = ($50,000 - $3,700 \times 4) = ($50,000 - $14,800) = $35,200.

How does this change Tameka’s marginal tax rate? What is her new average tax rate? How much in taxes does she now owe?

Tameka’s marginal tax rate for $35,200 is now just 15%. Her tax liability is also less because of the exemptions:

($8,500 \times .10) + ($26,700 \times .15)
($850 + $4,050) = $4,900 owed in taxes

Her new average tax rate is = $4,900/$35,200 or 13.9%, less than her marginal tax rate.
Note: Upon completing her income tax forms, Tameka would find that her tax bill would be reduced even further (lower than $4,900) when she includes the allowed federal standard deduction or alternatively if she itemizes deductions.