

Applications

The hardest thing in the world to understand is the income tax.

—Albert Einstein

ANSWERS

1. When you think of smart people, you may think of Einstein. Yet he found the tax system confusing. Therefore, the average citizen needs to take time to understand the system.

1. How can the quote be interpreted in light of what you have learned?

Use these excerpts from a tax table to answer Exercises 2–5.

If line 43 (taxable income) is—		And you are —			
At least	But less than	Single	Married filing jointly*	Married filing separately	Head of a household
		Your tax is —			
57,000					
57,000	57,050	10,050	7,631	10,050	8,579
57,050	57,100	10,063	7,639	10,063	8,591
57,100	57,150	10,075	7,646	10,075	8,604
57,150	57,200	10,088	7,654	10,088	8,616
57,200	57,250	10,100	7,661	10,100	8,629
57,250	57,300	10,113	7,669	10,113	8,641
57,300	57,350	10,125	7,676	10,125	8,654
57,350	57,400	10,138	7,684	10,138	8,666
57,400	57,450	10,150	7,691	10,150	8,679
57,450	57,500	10,163	7,699	10,163	8,691
57,500	57,550	10,175	7,706	10,175	8,704
57,550	57,600	10,188	7,714	10,188	8,716
57,600	57,650	10,200	7,721	10,200	8,729
57,650	57,700	10,213	7,729	10,213	8,741
57,700	57,750	10,225	7,736	10,225	8,754
57,750	57,800	10,238	7,744	10,238	8,766
57,800	57,850	10,250	7,751	10,250	8,779
57,850	57,900	10,263	7,759	10,263	8,791
57,900	57,950	10,275	7,766	10,275	8,804
57,950	58,000	10,288	7,774	10,288	8,816

If line 43 (taxable income) is—		And you are —			
At least	But less than	Single	Married filing jointly*	Married filing separately	Head of a household
		Your tax is —			
60,000					
60,000	60,050	10,800	8,081	10,800	9,329
60,050	60,100	10,813	8,089	10,813	9,341
60,100	60,150	10,825	8,096	10,825	9,354
60,150	60,200	10,838	8,104	10,838	9,366
60,200	60,250	10,850	8,111	10,850	9,379
60,250	60,300	10,853	8,119	10,863	9,391
60,300	60,350	10,875	8,126	10,875	9,404
60,350	60,400	10,888	8,134	10,888	9,416
60,400	60,450	10,900	8,141	10,900	9,429
60,450	60,500	10,913	8,149	10,913	9,441
60,500	60,550	10,925	8,156	10,925	9,454
60,550	60,600	10,938	8,164	10,938	9,466
60,600	60,650	10,950	8,171	10,950	9,479
60,650	60,700	10,953	8,179	10,963	9,491
60,700	60,750	10,975	8,186	10,975	9,504
60,750	60,800	10,988	8,194	10,988	9,516
60,800	60,850	11,000	8,201	11,000	9,529
60,850	60,900	11,013	8,209	11,013	9,541
60,900	60,950	11,025	8,216	11,025	9,554
60,950	61,000	11,038	8,224	11,038	9,566

If line 43 (taxable income) is—		And you are —			
At least	But less than	Single	Married filing jointly*	Married filing separately	Head of a household
		Your tax is —			
63,000					
63,000	63,050	11,550	8,531	11,550	10,079
63,050	63,100	11,563	8,539	11,563	10,091
63,100	63,150	11,575	8,546	11,575	10,104
63,150	63,200	11,588	8,554	11,588	10,116
63,200	63,250	11,600	8,561	11,600	10,129
63,250	63,300	11,613	8,569	11,613	10,141
63,300	63,350	11,625	8,576	11,625	10,154
63,350	63,400	11,638	8,584	11,638	10,166
63,400	63,450	11,650	8,591	11,650	10,179
63,450	63,500	11,663	8,599	11,663	10,191
63,500	63,550	11,675	8,606	11,675	10,204
63,550	63,600	11,688	8,614	11,688	10,216
63,600	63,650	11,700	8,621	11,700	10,229
63,650	63,700	11,713	8,629	11,713	10,241
63,700	63,750	11,725	8,636	11,725	10,254
63,750	63,800	11,738	8,644	11,738	10,266
63,800	63,850	11,750	8,651	11,750	10,279
63,850	63,900	11,763	8,659	11,763	10,291
63,900	63,950	11,775	8,666	11,775	10,304
63,950	64,000	11,788	8,674	11,788	10,316

- Determine the tax for each filing status and taxable income amount.
 - single \$57,723 **\$10,225**
 - head of household \$60,950 **\$9,566**
 - married filing jointly \$63,999 **\$8,674**
 - married filing separately \$57,521 **\$10,175**
- Given a taxable income amount, express the tax table line that would be used in compound inequality notation.
 - $i = \$60,124$ $i \geq 60,100$ and $i < 60,150$
 - $i = \$57,333$ $i \geq 57,300$ and $i < 57,350$
- Given the taxable income amount, express the tax table line that would be used in interval notation.
 - $i = \$57,555$ $57,550 \leq i < 57,600$
 - $i = \$63,411$ $63,400 \leq i < 63,450$
 - $i = \$60,002$ $60,000 \leq i < 60,050$
 - $i = \$63,301$ $63,300 \leq i < 63,350$

5. Given the filing status and the tax, identify the taxable income interval that was used to determine the tax.
- head of household \$9,404 at least 60,300 but less than 60,350
 - single \$11,775 at least 63,900 but less than 63,950
 - single \$10,975 at least 60,700 but less than 60,750
 - married filing jointly \$7,699 at least 57,450 but less than 57,500
 - married filing separately \$10,200 at least 57,600 but less than 57,650

Use Schedule Z to answer Exercises 6–10.

Schedule Z—If your filing status is **Head of household**

If your taxable income is:		The tax is:	
Over—	But not over—		of the amount over—
\$0	\$13,150	----- 10%	\$0
13,150	50,200	\$1,315.00 + 15%	13,150
50,200	129,600	6,872.50 + 25%	50,200
129,600	209,850	26,722.50 + 28%	129,600
209,850	411,500	49,192.50 + 33%	209,850
411,500	439,000	115,737.00 + 35%	411,500
439,000	-----	125,362.00 + 39.6%	439,000

6. Calculate the tax for each taxable income of a head of household.
- \$400,000 **\$111,942**
 - \$10,954 **\$1,095.40**
 - \$108,962 **\$21,563.00**
 - \$209,850 **\$49,192.50**
7. For what taxable income would a taxpayer have to pay \$26,277.50 in taxes? Explain your reasoning. **See margin.**
8. According to the tax schedule, Rich has to pay \$25,000 in taxes. What is Rich's taxable income? **\$122,710**
9. Kelly's taxable income is \$110,000. Approximately what percent of her taxable income is her tax? **Approx. 19.8%**
10. Maureen's taxable income, t , is between \$129,600 and \$209,850. Write an algebraic expression that represents her tax. **$26,722.50 + 0.28(t - 129,600)$**

Use this Section D tax computation worksheet to answer Exercises 11–14.

Section D—Use if your filing status is **Head of household**. Complete the row below that applies to you.

Taxable income If line 43 is—	(a)	(b)	(c)	(d)	Tax
	Enter the amount from line 43	Multiplication amount	Multiply (a) by (b)	Subtraction amount	Subtract (d) from (c). Enter the result here and on Form 1040, line 44
At least \$100,000 but not over \$129,600	\$	× 25% (0.25)	\$	\$5,677.50	\$
Over \$129,600 but not over \$209,850	\$	× 28% (0.28)	\$	\$9,565.50	\$
Over \$209,850 but not over \$411,500	\$	× 33% (0.33)	\$	\$20,058.00	\$
Over \$411,500 but not over \$439,000	\$	× 35% (0.35)	\$	\$28,288.00	\$
Over \$439,000	\$	× 39.6% (0.396)	\$	\$48,482.00	\$

TEACH

Exercise 5

Students must work backward. Impress upon them that only the interval can be determined, not the exact taxable income.

TEACH

Exercises 6–10

These exercises offer students practice with a tax schedule. Before assigning the problems, make sure that they have a grasp of the structure of the schedule.

7. **\$127,820; Use the formula $6,872.50 + 0.25(x - 50,200) = 26,277.50$; it is the cut-off amount between the third and fourth intervals**

11. Calculate the tax for each of the taxable incomes of a head-of-household taxpayer.
- \$400,000 **\$111,942**
 - \$108,962 **\$21,563**
 - \$201,102 **\$46,743.06**
 - \$106,000 **\$20,822.50**
12. Let x represent a head-of-household taxpayer's taxable income that is over \$439,000. Write an expression for this taxpayer's tax in terms of x . **$0.396x - 48,452$**
13. Let w represent the tax for any taxable income t on the interval $411,500 < t \leq 439,000$.
- Calculate the lowest tax on this interval. **\$115,737.00**
 - Calculate the highest tax on this interval. **\$125,362.00**
 - Given the interval, $411,500 < t \leq 439,000$, express the tax in terms of t . **$0.35t - 28,288$**
14. Calculate the tax using the computation worksheet for a head-of-household taxpayer with a taxable income of \$115,700. **\$23,247.50**
15. Using the tax schedule from Exercise 6, calculate the tax for the person in Exercise 14. **\$23,247.50**
16. Is there a difference in the tax in Exercises 14 and 15? If so, how much and which method favors the taxpayer? **No, they are the same**
17. Use the tax table below to calculate the tax of a head-of-household taxpayer with a taxable income of \$27,811. **\$3,516.00**

If line 43 (taxable income) is—		And you are —			
At least	But less than	Single	Married filing jointly*	Married filing sepa- rately	Head of a house- hold
27,000					
27,000	27,050	3,593	3,131	3,593	3,396
27,050	27,100	3,600	3,139	3,600	3,404
27,100	27,150	3,608	3,146	3,608	3,411
27,150	27,200	3,615	3,154	3,615	3,419
27,200	27,250	3,623	3,161	3,623	3,426
27,250	27,300	3,630	3,169	3,630	3,434
27,300	27,350	3,638	3,176	3,638	3,441
27,350	27,400	3,645	3,184	3,645	3,449
27,400	27,450	3,653	3,191	3,653	3,456
27,450	27,500	3,660	3,199	3,660	3,464
27,500	27,550	3,668	3,206	3,668	3,471
27,550	27,600	3,675	3,214	3,675	3,479
27,600	27,650	3,683	3,221	3,683	3,486
27,650	27,700	3,690	3,229	3,690	3,494
27,700	27,750	3,698	3,236	3,698	3,501
27,750	27,800	3,705	3,244	3,705	3,509
27,800	27,850	3,713	3,251	3,713	3,516
27,850	27,900	3,720	3,259	3,720	3,524
27,900	27,950	3,728	3,266	3,728	3,531
27,950	28,000	3,735	3,274	3,735	3,539

18. Use Schedule Z from Exercise 6 to calculate the tax for the taxpayer in Exercise 17. **\$3,514.15**
19. Is there a difference in the tax in Exercises 17 and 18? If so, how much and which method favors the taxpayer? **Yes; tax is \$1.85 less using Schedule Z**

20. In 1990, taxpayers used the following tax schedule.

1990 Tax Rate Schedules

Caution: Use *ONLY* if your taxable income (Form 1040, line 37) is \$50,000 or more. If less, use the **TAX Table**. (Even though you cannot use the tax rate schedules below if your taxable income is less than \$50,000, we show all levels of taxable income so that taxpayers can see the tax rate that applies to each level.)

Schedule X— If your filing status is **Single**

Over—	But not Over—	Enter on Form 1040 line 38	of the amount Over—
\$0	\$19,450	----- 15%	\$0
19,450	47,050	\$2,917.50 + 28%	18,450
47,050	97,620	10,645.50 + 33%	47,050
97,620	-----	Use Worksheet below to figure your tax.	

Schedule Z— If your filing status is **Head of household**

Over—	But not Over—	Enter on Form 1040 line 38	of the amount Over—
\$0	\$26,050	----- 15%	\$0
26,050	67,200	\$3,907.50 + 28%	26,050
67,200	134,930	15,429.50 + 33%	67,200
134,930	-----	Use Worksheet below to figure your tax.	

- Compare the tax of a head of household whose taxable income in 1990 was \$120,000 with the tax of a head of household who earns the same amount using the tax schedule from Exercise 6. **Tax in 1990 was \$32,853.50; Ex. 6 tax is \$24,322.50**
- What percent of the taxable income was the tax in each case? **Approx. 27% in 1990; approx. 20% in Ex. 6.**
- Go to the IRS website (www.irs.gov) and find the most recent tax rate schedules. Compare the tax of the same head-of-household taxpayer from part a with a head-of-household taxpayer with the same taxable income today. What percent increase has there been in the tax? **Answers vary depending on the current tax tables.**

TEACH Exercise 20

This exercise is included to give students a historical perspective on tax rates then (1990) and now. Once students have completed this problem using the 1990 tax schedule, it is suggested that you get the most recent tax schedule and have them use those figures in answering the same exercises. Ask students to compare the results. What changes have been made to the schedule and to the amount of tax owed?