

# Applications

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

1. How can the quote be interpreted in light of what you have learned?  
See margin.  
Use these tax tables 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 —			
<b>57,000</b>					
57,000	57,050	10,600	7,751	10,600	9,319
57,050	57,100	10,613	7,759	10,613	9,331
57,100	57,150	10,625	7,766	10,625	9,344
57,150	57,200	10,638	7,774	10,638	9,356
57,200	57,250	10,650	7,781	10,650	9,369
57,250	57,300	10,663	7,789	10,663	9,381
57,300	57,350	10,675	7,796	10,675	9,394
57,350	57,400	10,688	7,804	10,688	9,406
57,400	57,450	10,700	7,811	10,700	9,419
57,450	57,500	10,713	7,819	10,713	9,431
57,500	57,550	10,725	7,826	10,725	9,444
57,550	57,600	10,738	7,834	10,738	9,456
57,600	57,650	10,750	7,841	10,750	9,469
57,650	57,700	10,763	7,849	10,763	9,481
57,700	57,750	10,775	7,856	10,775	9,494
57,750	57,800	10,788	7,864	10,788	9,506
57,800	57,850	10,800	7,871	10,800	9,519
57,850	57,900	10,813	7,879	10,813	9,531
57,900	57,950	10,825	7,886	10,825	9,544
57,950	58,000	10,838	7,894	10,838	9,556

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 —			
<b>60,000</b>					
60,000	60,050	11,350	8,201	11,350	10,069
60,050	60,100	11,363	8,209	11,363	10,081
60,100	60,150	11,375	8,216	11,375	10,094
60,150	60,200	11,388	8,224	11,388	10,106
60,200	60,250	11,400	8,231	11,400	10,119
60,250	60,300	11,413	8,239	11,413	10,131
60,300	60,350	11,425	8,246	11,425	10,144
60,350	60,400	11,438	8,254	11,438	10,156
60,400	60,450	11,450	8,261	11,450	10,169
60,450	60,500	11,463	8,269	11,463	10,181
60,500	60,550	11,475	8,276	11,475	10,194
60,550	60,600	11,488	8,284	11,488	10,206
60,600	60,650	11,500	8,291	11,500	10,219
60,650	60,700	11,513	8,299	11,513	10,231
60,700	60,750	11,525	8,306	11,525	10,244
60,750	60,800	11,538	8,314	11,538	10,256
60,800	60,850	11,550	8,321	11,550	10,269
60,850	60,900	11,563	8,329	11,563	10,281
60,900	60,950	11,575	8,336	11,575	10,294
60,950	61,000	11,588	8,344	11,588	10,306

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 —			
<b>63,000</b>					
63,000	63,050	12,100	8,651	12,100	11,899
63,050	63,100	12,113	8,659	12,113	11,911
63,100	63,150	12,125	8,666	12,125	11,924
63,150	63,200	12,138	8,674	12,138	11,936
63,200	63,250	12,150	8,681	12,150	11,949
63,250	63,300	12,163	8,689	12,163	11,961
63,300	63,350	12,175	8,696	12,175	11,974
63,350	63,400	12,188	8,704	12,188	11,986
63,400	63,450	12,200	8,711	12,200	11,999
63,450	63,500	12,213	8,719	12,213	12,011
63,500	63,550	12,225	8,726	12,225	12,024
63,550	63,600	12,238	8,734	12,238	12,036
63,600	63,650	12,250	8,741	12,250	12,049
63,650	63,700	12,263	8,749	12,263	12,061
63,700	63,750	12,275	8,756	12,275	12,074
63,750	63,800	12,288	8,764	12,288	12,086
63,800	63,850	12,300	8,771	12,300	12,099
63,850	63,900	12,313	8,779	12,313	12,111
63,900	63,950	12,325	8,786	12,325	12,124
63,950	64,000	12,338	8,794	12,338	12,136

## TEACH

### Exercise 5

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

## ANSWERS

- 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.
- $57,550 \leq i < 57,600$
  - $63,400 \leq i < 63,450$
  - $60,000 \leq i < 60,050$
  - $63,300 \leq i < 63,350$

- Determine the tax for each filing status and taxable income amount.

- single \$57,723 **\$10,775**
- head of household \$60,950 **\$10,725**
- married filing jointly \$63,999 **\$8,794**
- married filing separately \$57,521 **\$10,725**

- Given a taxable income amount, express the tax table line that would be used in compound inequality notation.

- $i = \$60,124 \quad i \geq 60,100 \text{ and } i < 60,150$
- $i = \$57,333 \quad i \geq 57,300 \text{ and } i < 57,350$

- Given the taxable income amount, express the tax table line that would be used in interval notation. See margin.

- $i = \$57,555$
- $i = \$63,411$
- $i = \$60,002$
- $i = \$63,301$

- Given the filing status and the tax, identify the taxable income interval that was used to determine the tax.

- head of household \$9,406 at least \$57,350 but less than \$57,400
- single \$12,275 at least \$63,700 but less than \$63,750
- single \$11,538 at least \$60,750 but less than \$60,800
- married filing jointly \$8,291 at least \$60,600 but less than \$60,650
- married filing separately \$10,788 at least \$57,750 but less than \$57,800

**Use these tax schedules 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	\$11,450	----- 10%	\$0
11,450	43,650	\$1,145.00 + 15%	11,450
43,650	112,650	5,975.00 + 25%	43,650
112,650	182,400	23,225.00 + 28%	112,650
182,400	357,700	42,755.00 + 33%	182,400
357,700	-----	100,604.00 + 35%	357,700

**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.

- Calculate the tax for each taxable income of a head of household.
  - \$400,000 **\$115,409**
  - \$10,954 **\$1,095.40**
  - \$108,962 **\$22,303**
  - \$201,102 **\$48,926.66**
- For what taxable income would a taxpayer have to pay \$5,975.00 in taxes? Explain your reasoning. **\$43,650; it is the minimum amount in that interval.**
- According to the tax schedule, Rich has to pay \$25,000 in taxes. What is Rich's taxable income? **\$118,989.29**
- Kelly's taxable income is \$110,000. Approximately what percent of her taxable income is her tax? **21%**
- Maureen's taxable income,  $t$ , is between \$182,400 and \$357,700. Write an algebraic expression that represents her tax.  **$42,755 + 0.33(t - 182,400)$**

**Use this 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 \$112,650	\$	× 25% (.25)	\$	\$ 4,937.50	\$
Over \$112,650 but not over \$182,400	\$	× 28% (.28)	\$	\$ 8,317.00	\$
Over \$182,400 but not over \$357,700	\$	× 33% (.33)	\$	\$ 17,437.00	\$
Over \$357,700	\$	× 35% (.35)	\$	\$ 24,591.00	\$

- Calculate the tax for each of the taxable incomes of a head of household taxpayer.
  - \$400,000 **\$115,409**
  - \$108,962 **\$22,303**
  - \$201,102 **\$48,926.66**
  - \$106,000 **\$21,562.50**
- Let  $x$  represent a head of household taxpayer's taxable income that is over \$357,700. Write an expression for this taxpayer's tax in terms of  $x$ .  **$0.35x - 24,591$**
- Let  $w$  represent the tax for any taxable income  $t$  on the interval  $182,400 < t \leq 357,700$ .
  - Calculate the lowest tax on this interval. **\$42,755**
  - Calculate the highest tax on this interval. **\$100,604**
  - Given the interval,  $182,400 < t \leq 357,700$ , express the tax in terms of  $w$ .  **$0.33w - 17,437$**

**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?

**ANSWERS**

- 20a. 1990 tax: \$32,853.50;  
Exercise 6 tax: \$25,283
- 20b. 1990: ≈27%;  
Exercise 6: ≈21%
- 20c. Answers vary depending on the current tax schedules.

- 14. Calculate the tax using the computation worksheet for a head of household taxpayer with a taxable income of \$115,700. **\$24,079**
- 15. Using the tax schedule from Exercise 6, calculate the tax for the person in Exercise 14. **\$24,079**
- 16. Is there a difference in the tax in Exercises 14 and 15? If so, how much and which method favors the taxpayer? **They are the same.**
- 17. Use the tax table at the right to calculate the tax of a head of household taxpayer with a taxable income of \$27,811. **\$3,601**
- 18. Use Schedule Z from Exercise 6 to calculate the tax for the taxpayer in Exercise 17. **\$3,599.15**
- 19. Is there a difference in the tax in Exercises 17 and 18? If so, how much and which method favors the taxpayer? **yes; by \$1.85; Schedule Z**
- 20. In 1990, taxpayers used the following tax schedule. **See margin.**

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 —					
<b>27,000</b>					
27,000	27,050	3,653	3,251	3,653	3,481
27,050	27,100	3,660	3,259	3,660	3,489
27,100	27,150	3,668	3,266	3,668	3,496
27,150	27,200	3,675	3,274	3,675	3,504
27,200	27,250	3,683	3,281	3,683	3,511
27,250	27,300	3,690	3,289	3,690	3,519
27,300	27,350	3,698	3,296	3,698	3,526
27,350	27,400	3,705	3,304	3,705	3,534
27,400	27,450	3,713	3,311	3,713	3,541
27,450	27,500	3,720	3,319	3,720	3,549
27,500	27,550	3,728	3,326	3,728	3,556
27,550	27,600	3,735	3,334	3,735	3,564
27,600	27,650	3,743	3,341	3,743	3,571
27,650	27,700	3,750	3,349	3,750	3,579
27,700	27,750	3,758	3,356	3,758	3,586
27,750	27,800	3,765	3,364	3,765	3,594
27,800	27,850	3,773	3,371	3,773	3,601
27,850	27,900	3,780	3,379	3,780	3,609
27,900	27,950	3,788	3,386	3,788	3,616
27,950	28,000	3,795	3,394	3,795	3,624

## 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 <b>Single</b>				Schedule Z— If your filing status is <b>Head of household</b>			
If the amount on Form 1040 line 37, is:	But not Over—	Enter on Form 1040 line 38	of the amount Over—	If the amount on Form 1040 line 37, is:	But not Over—	Enter on Form 1040 line 38	of the amount Over—
Over—				Over—			
\$0	\$19,450	----- 15%	\$0	\$0	\$26,050	----- 15%	\$0
19,450	47,050	\$2,917.50 + 28%	18,450	26,050	67,200	\$3,907.50 + 28%	26,050
47,050	97,620	10,645.50 + 33%	47,050	67,200	134,930	15,429.50 + 33%	67,200
97,620	-----	Use Worksheet below to figure your tax.		134,930	-----	Use Worksheet below to figure your tax.	

- a. Compare the tax of a head of household taxpayer whose taxable income in 1990 was \$120,000 with a head of household taxpayer's tax, using the tax schedule from Exercise 6, who earns the same amount.
- b. What percent of the taxable income was the tax in each year?
- c. Go to the IRS website (www.irs.gov) and find the most recent tax rate schedule. Compare the tax of the same head of household taxpayer from part a with a head of household taxpayer making the same salary today. What percent increase has there been in the tax from then to now?