

Tax Brackets

First, make sure you're looking at "Single filers." Then work the following problems:

1. Calculate the income tax owed on a taxable income of **\$50,000**.

Solution: \$50,000 lies in the 22% tax bracket. The tax owed is therefore described by the expression: \$4,453.50 plus 22% of the amount over \$38,700.

The amount over \$38,700 is found by subtracting:

$$50,000 - 38,700 = 11,300$$

22% of that is

$$0.22 \times 11,300 = 2,486$$

And then we add:

$$4,453.50 + 2,486 = \mathbf{\$6,939.50}, \text{ the amount of taxed owed.}$$

2. Calculate the income tax owed on a taxable income of **\$7,500**.
3. Calculate the income tax owed on a taxable income of **\$180,000**.
4. Calculate the income tax owed on a taxable income of **\$500,000**.
5. Express the tax brackets **32% and 35%** as a BRANCH FUNCTION.

Answer: If x represents income and $T(x)$ represents tax owed:

$$T(x) = \begin{cases} 32,089.50 + 0.32(x - 157,500) & \text{if } 157,501 \leq x \leq 200,000 \\ 45,689.50 + 0.35(x - 200,000) & \text{if } 200,001 \leq x \leq 500,000 \end{cases}$$

6. Express the following tax table as a BRANCH FUNCTION:

Taxable income bracket	Tax Owed
\$10,000 to \$30,000	\$2000 plus 12% of the amount over \$10,000
\$30,001 to \$40,000	\$3600 plus 18% of the amount over \$30,000