Income Tax

Math 111

... in this world nothing can be said to be certain, except death and taxes.

- Ben Franklin, 1789

The table below shows the Federal Income tax rates for single filers (as of 2018). As you earn more income, the tax rate goes up. If someone has \$100,000 of taxable income, then they are in the 24% tax bracket. That doesn't mean that they pay 24% of \$100,000, however. They only pay 24% taxes on the income above \$82,500. This kind of tax rate is called a **marginal tax rate**.

Income			Tax Rate
\$0	to	\$9,525	10%
\$9,525	to	\$38,700	12%
\$38,700	to	\$82,500	22%
\$82,500	to	\$157,500	24%
\$157,500	to	\$200,000	32%
\$200,000	to	\$500,000	35%
\$500,000+			37%

1. If you only made \$9,525 in taxable income, then how much income tax would you owe?

2. Use the **point-slope formula** for a line:

$$y - y_0 = m(x - x_0).$$

to find the relationship between taxes owed (y) and income (x) for people in the 12% tax bracket. Hint, the slope is the tax rate and you can use your answer to the previous part to find a point (x_0, y_0) on the line.

3. Use algebra to convert your previous answer to the **slope-intercept formula** for a line:

$$y = mx + b.$$

You'll need to solve for the *y*-intercept (b).

4. Use your answer to the last problem to calculate how much tax someone making \$38,700 in taxable income owes the government.

5. What are the simplest possible instructions you could give people making between \$38,700 and \$82,500 so they could calculate their own income tax?

6. Use the space below to graph total income tax owed (in dollars) versus income up to \$80,000.

