



ICE - Piecewise Functions



Figure 1: President George W. Bush describes his tax relief proposal to a joint session of congress, February 8 2001.

On February 8, 2001, President Bush presented his tax relief plan to a joint session of congress (see Figure 1¹). The tax rate schedules for President Bush's new plan and the existing tax rate schedule (for married couples) is shown in Table 1².

President Bush's plan features a number of changes to current taxation practices, including:

- **Doubling the child tax credit to \$1000 per child and applying the credit to the alternative minimum tax,**
- **Reducing the marriage penalty by reinstating the 10% deduction for two-earner couples,**
- **Eliminating death tax, and,**
- **Expanding the charitable deduction to non-itemizers.**

However, according to an analysis of President Bush's plan, by far the most important part of the plan is the reduction of the marginal tax rates³ (see Table 1).

Taxable income (Tax year 2001)	Federal tax due under current law	Federal tax due under President Bush's proposal
0-\$12,000	15% of taxable income	10% of taxable income
\$12,001-\$45,200	\$1,800 + 15% of amount over \$12,000	\$1,200 + 15% of amount over \$12,000
\$45,201-\$109,250	\$6,780 + 28% of amount over \$45,200	\$6,180 + 25% of amount over \$45,200
\$109,251-\$166,500	\$24,714 + 31% of amount over \$109,251.	\$22,193 + 25% of amount over \$109,251
\$166,501-\$297,350	\$42,462 + 36% of amount over \$166,500.	\$36,505 + 33% of amount over \$166,501
\$297,351-	\$89,568 + 39.6% of amount over \$297,350.	\$79,686 + 33% of amount over \$297,351

Table 1: Current Federal taxation rate schedule and President Bush's proposal⁴.

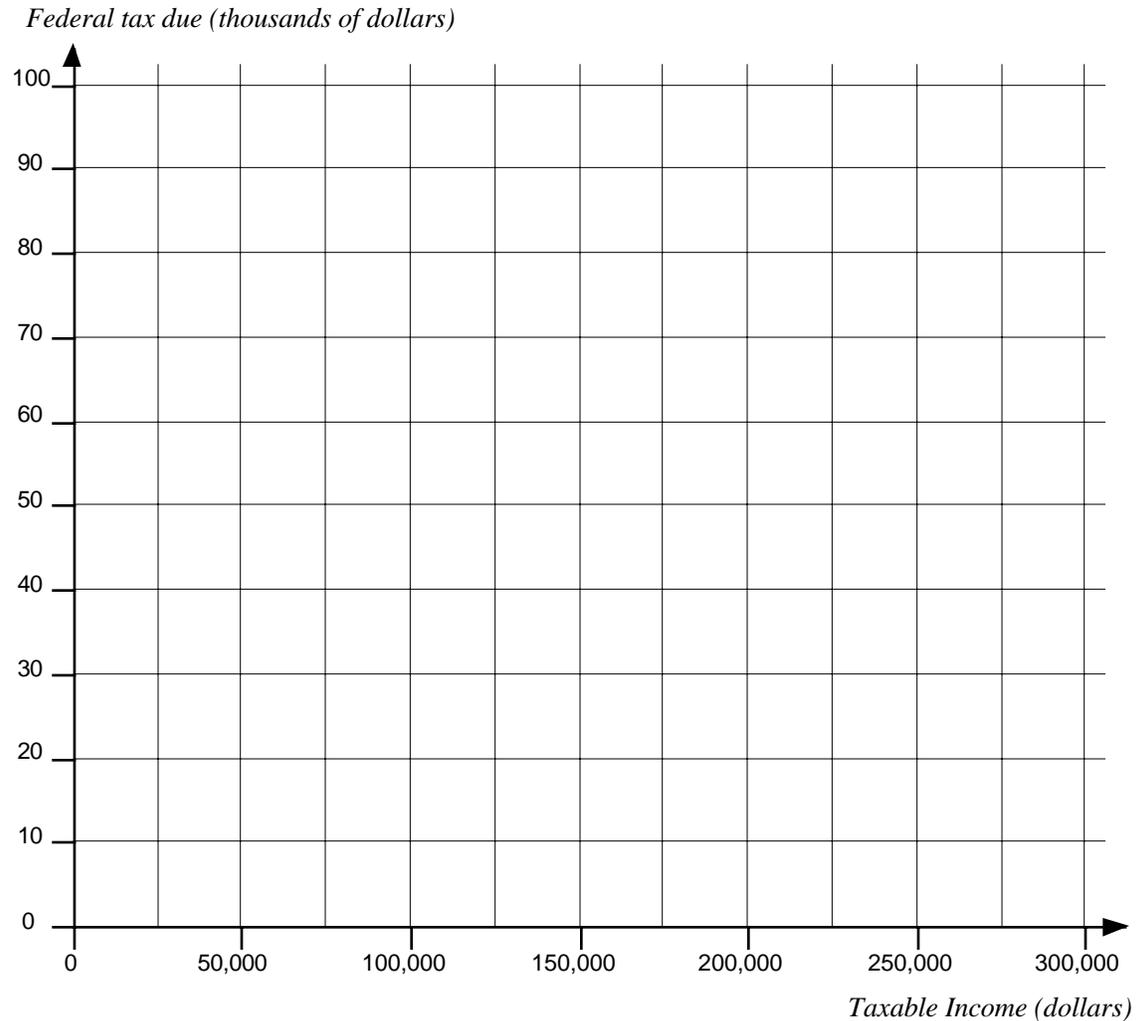
¹ Image source: <http://www.house.gov/gibbons/Pres.Bush.Tax.Plan.htm>

² Source: Office of the President. <http://www.whitehouse.gov/president/>

³ Brumbaugh, David L. (2001) "President Bush's tax proposal: A brief overview." Congressional Research Service Report for Congress RS20819.

⁴ Source: Office of the President. <http://www.whitehouse.gov/president/>

- Use the information from Table 1 to sketch a graph showing the federal tax due versus the taxable income for the current schedule of taxation, and for President Bush's new plan.



In his address to congress, President Bush said of his tax proposal:

“These are the basic ideas that guide my tax policy: lower income taxes for all, with the greatest help for those most in need. Everyone who pays income taxes benefits - while the highest percentage tax cuts go to the lowest income Americans.” - President George W. Bush.

In the remaining part of the ICE, you'll create a function that is not one single equation but rather a collection of equations.

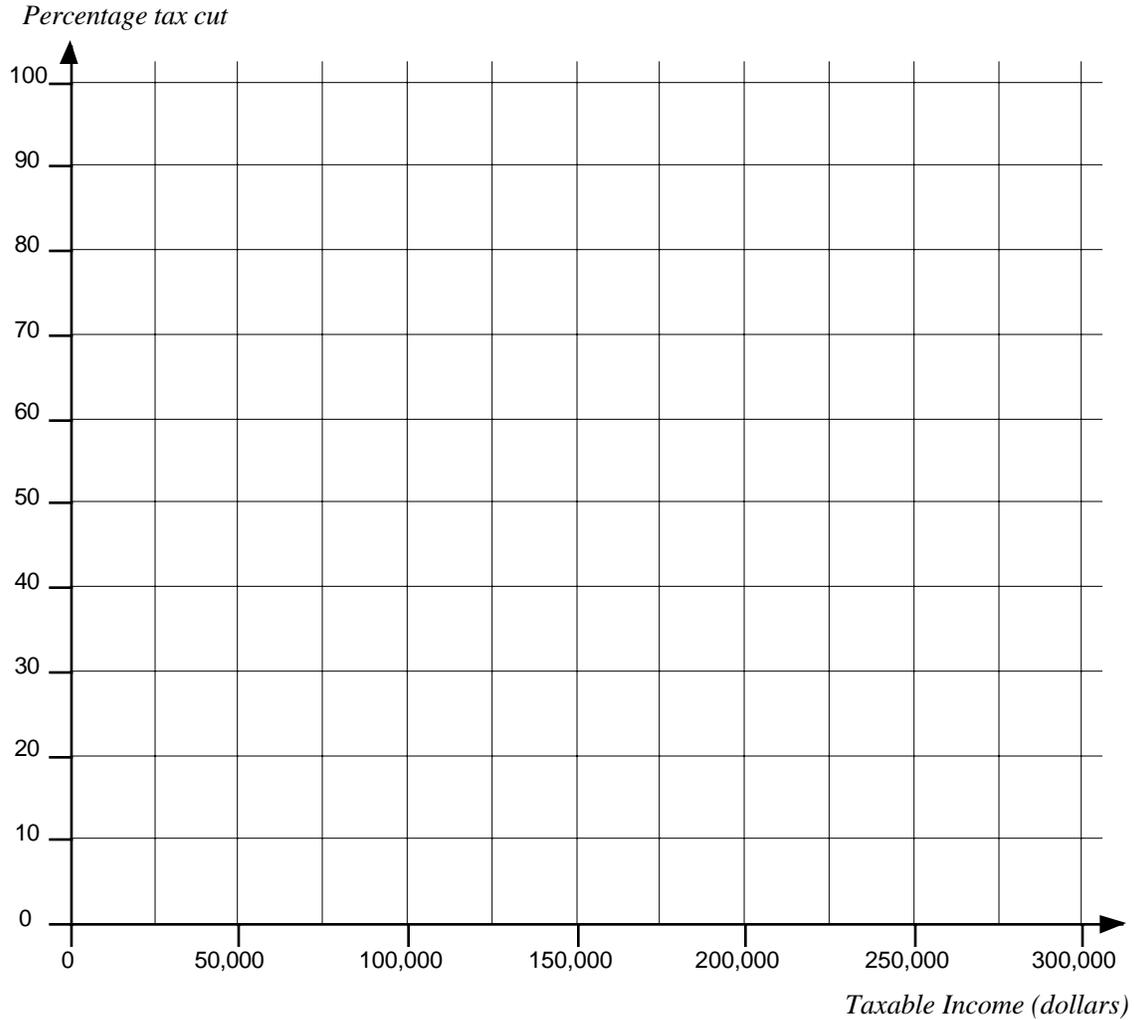
- Create a function for the \$0-\$12,000 bracket that gives the tax savings offered by President Bush's new tax proposal.

- ***How do you interpret President Bush's words regarding "highest percentage tax cuts" ? Do you think that he intended to mean the highest percentage when compared to the amount of Federal tax due, or the highest percentage when compare to taxable income?***

- ***Find equations reflecting these two possible scenarios that give the "percentage tax cuts" as functions of taxable income for the \$0-\$12,000 tax bracket.***

- ***Republican presidents have often been accused of adopting economic policies that favor the wealthy over the poor. Create functions that give the "percentage tax cuts" as functions of taxable income for the \$166,500-\$297,350 and \$297,351+ tax brackets.***

- Use the axes provided below to graph you functions giving “percentage tax cut.” Does your graph support President Bush’s statement?



- Does your graph support President Bush’s statement?

Epilogue:

The Senate approved a moderated President Bush’s 2002 federal budget, including the new tax plan, on April 16 2001. Instead of the \$1.6 trillion, 10-year tax cut that President Bush envisioned, the Senate approved a version that would lead to a \$1.2 trillion tax cut over a period of 11 years.⁵

⁵ CNN. “Senate pares Bush tax-cut plan by \$400 billion.” April 6, 2001.