

Unit 3: The Mathematics of Household Budgeting

Goal: To use mathematics to plan a budget, including income and expenses.

Expectations

1. represent and analyze mathematical models for various types of income, such as commission, salary, and hourly wage.

Example:

Two sales companies have offered you a job with the following salary arrangements: the first company offers \$20,000 a year, then a 5% commission on sales over \$400,000; the second company offers a straight commission of 8% on all sales. Analyze these job offers. What considerations should you take into account when determining which job to take?

2. determine, represent, and analyze various types of deductions from income, such as federal and state income taxes, Social Security, and Medicare taxes.

Example:

You have accepted a job that pays an annual salary of \$ 36,000 per year. Approximately how much money will you take home every week if your only deductions are state and federal income taxes, Social Security, and Medicare taxes?

Example:

You have \$3,000 taken out of your paycheck each year for a Flexible Spending Account (FSA) for medical expenses. What effect does this have on your taxable income? What is the net amount that you pay for medical expenses after the tax savings?

Example:

On a taxable income of \$50,000 a year, you received an income tax refund of \$4,000. How much money could you have earned in interest (the federal government pays none) if you increased the number of exemptions such that your refund was only \$1,000?

3. analyze household expenses to create a household budget utilizing food, shelter, transportation, utilities, insurance, savings, and other expenses.

Example:

Determine how much money it would cost you to live in Rockville per month. Include expenses such as food, shelter, transportation, and any other relevant expenses.

Example:

You have purchased a new car for \$25,000. The car is being financed over 72 months at 4% compounded monthly. You plan on driving 10,000 miles and the car gets 25 miles per gallon. The car will lose 15% of its value the first year in depreciation. Other expenses are car insurance and scheduled maintenance. What will be the cost per mile to operate this car for the first year?

4. analyze the effect that income taxes have on individual finances, including purchasing a home, the cost of an education, and medical expenses.

Example:

The principal and interest payment on a mortgage is \$1,500 a month. If you are in the 15% marginal tax bracket, what will the net payment be after the income tax deduction is applied?

Example:

Analyze and complete a Federal and Maryland state income tax return to determine how various expenses affect the amount of income tax paid.