State Income Tax and Graduated State Income Tax

Most states require employers to withhold a certain amount of your pay for state income tax. In some states, the tax withheld is a percent of your taxable wages. Your taxable wages depend on personal exemptions allowed for supporting yourself and others in your family. Most states have a graduated income tax that involves a different tax rate for each of several levels of income.

\[
\begin{align*}
\text{TAXABLE WAGES} &= \text{ANNUAL GROSS PAY} - \text{PERSONAL EXEMPTIONS} \\
\text{ANNUAL TAX WITHHELD} &= \text{TAX RATE} \times \text{TAXABLE WAGES} \\
\text{TAX WITHHELD PER PAY PERIOD} &= \frac{\text{ANNUAL TAX WITHHELD}}{\text{NUMBER OF PAY PERIODS PER YEAR}}
\end{align*}
\]

For problems 1-4, use the personal exemptions below and find the amount withheld.

PERSONAL EXEMPTIONS: Single — $1400; Married — $2800;
Each Dependent — $1000

1. Jack Pasler earns $20,940 annually as an accountant. He is married and supports 1 child. The state tax rate in Jack’s state is 4.5% of taxable income. What amount is withheld yearly for state income tax?

2. Rose Klaus earns $34,850 annually as an engineer. She is single and supports her father. The state tax rate in Rose’s state is 3.0% of taxable income. What amount is withheld yearly for state income tax?

3. Wes Kennedy earns $30,140 annually as a new staff attorney. He is single. The state tax rate in Wes’s state is 3.5% of taxable income. What amount is withheld from Wes’s monthly pay for state income tax?

4. Katrina Harold earns $364.85 per week. She is married and claims 3 children as dependents. The state tax rate in Katrina’s state is 2.0% of taxable income. What amount is withheld from Katrina’s weekly pay for state income tax?

5. You are a computer operator for Data Base, Inc. The state has the following personal exemptions and graduated income tax.

<table>
<thead>
<tr>
<th>Personal Exemptions</th>
<th>STATE INCOME TAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single $1500</td>
<td>Annual Gross Pay</td>
</tr>
<tr>
<td>Married $3000</td>
<td>First $2000</td>
</tr>
<tr>
<td>Each Dependent $700</td>
<td>Next $3000</td>
</tr>
<tr>
<td></td>
<td>Next $3000</td>
</tr>
<tr>
<td></td>
<td>Over $8000</td>
</tr>
</tbody>
</table>

You earn $20,160 a year. You are single and are paid on a weekly basis. What amount is withheld from your weekly paycheck for state income tax?
Coupons and Rebates

Manufacturers, stores, and service businesses offer customers discounts through coupons and refunds or rebates. Manufacturer’s or store coupons are redeemed at the time of purchase. Manufacturers rebates are obtained by mailing in a rebate coupon along with the sales slip and the U.P.C. (Universal Product Code) label from the product.

FINAL PRICE = TOTAL SELLING PRICE - TOTAL SAVINGS

1. Jesse Aranud purchased a 32-oz bottle of liquid rubber cement for $8.19. He had the store coupon for $1.00. What is the final price of the rubber cement?

2. Bertha DeVys had the oil changed in her company car. She had a $3.00 off coupon from the Grease Monkey oil change service. The regular price of an oil change is $22.99. What is the final price?

3. Albert Poole purchased an AT&T phone answering system for his home office. The list price was $99.86. He also purchased a 12-foot handset cord for $8.95 and 50 feet of telephone wire for 15¢ a foot. He received a $5.00 rebate on the phone system and had a store coupon for $1.00 off each accessory. If he paid a 6% sales tax on the final price, how much did he pay?

4. A Thanksgiving Day promotion included a $1.00 mail-in rebate for the purchase of a turkey weighing at least 20 lbs. Esther Rothert purchased a 22-lb turkey for 89¢ a pound. What is the price after the rebate if an envelope costs 15¢ and a stamp costs 29¢?

5. A Fourth of July promotion included a $5.00 mail-in rebate for the purchase of a picnic cooler and a store coupon for 50¢ off the price of a case of 24 cans of soft drinks. For the company picnic Carl Rhiel purchased a 48-quart cooler for $32.99 and a case of pop for $6.09. What is the price after the rebate if an envelope costs 15¢ and a stamp costs 29¢?

6. A box of ten 3½-inch high density computer disks costs $15.90 and has a $2.00 mail-in rebate on the back of the box. What is the price per disk after the rebate if an envelope costs 20¢ and a stamp costs 29¢?

7. If you purchase a toner cartridge for a laser printer and a case of 10 reams of laser paper, you get a mail-in coupon and can receive $1.50 back by mail. If an envelope costs 18¢ and a stamp costs 29¢, how much is your actual rebate?
LESSON 11-1

Average Monthly Expenditure

You can manage your money better by keeping an accurate record of your expenditures. You will be able to evaluate your spending habits by keeping detailed records for a number of months.

\[
\text{AVERAGE MONTHLY EXPENDITURE} = \frac{\text{SUM OF MONTHLY EXPENDITURES}}{\text{NUMBER OF MONTHS}}
\]

Complete the table below.

<table>
<thead>
<tr>
<th>Name</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>Average Monthly Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. P. Barker</td>
<td>$934.20</td>
<td>$1317.27</td>
<td>$1112.15</td>
<td>$1019.20</td>
<td></td>
</tr>
<tr>
<td>2. L. Lee</td>
<td>$823.40</td>
<td>$917.17</td>
<td>$1012.10</td>
<td>$987.43</td>
<td></td>
</tr>
<tr>
<td>3. K. Rue</td>
<td>$1134.14</td>
<td>$1572.99</td>
<td>$1996.61</td>
<td>$1475.50</td>
<td></td>
</tr>
<tr>
<td>4. T. Gearger</td>
<td>$1192.75</td>
<td>$1946.62</td>
<td>$1439.84</td>
<td>$1503.22</td>
<td></td>
</tr>
</tbody>
</table>

5. In the table above, who had the highest average expenditure?

6. In the table above, who had the lowest average expenditure?

7. The Carsons’ expenditures for this month are: rent, $412; groceries, $378; utilities, $219.55; gasoline, $50.50; entertainment, $54.80; medical bills, $62.40; and miscellaneous, $95.47. How much did they spend?

8. The Jacobs’ expenditures for the past 7 months were: January, $1084.45; February, $886.40; March, $968.45; April, $1142.60; May, $995.80; June, $1379.86; and July, $1042.88. What is their average monthly expenditure?

9. Fay Teng’s expenditures for the past 3 months were: August, $1735.50, September, $1829.42; and October, $1793.88. What is Fay’s average monthly expenditure?

10. Jack Dodson has a budget of $990 a month. His budget includes rent, utilities, transportation, clothing, groceries, and miscellaneous expenses. For the past 6 months his expenditures were: January, $927.50; February, $984.40; March, $1032.32; April, $1195.55; May, $874.24; and June $943.37.
   a. What is his average monthly expenditure?
   b. How much over his budget is this?

11. You use the utility company’s budget plan for paying your home heating bills. You pay $75 a month for 9 months. Your actual bills are: September, $28.95; October, $46.15; November, $68.46; December, $109.34; January, $115.26; February, $94.19; March, $75.66; April, $51.97; and May, $49.16. Compute the average for the 9 months.
WORKSHOP 1: Writing and Rounding Numbers

The place-value chart gives the value of each digit in the number 4532.869. The place-value chart can help you write numbers.

32.86 is thirty-two and eighty-six hundredths.

Place value is also used in rounding. Round 7437 to the nearest hundred.

- Hundreds' place 7437
- 5 or more? No.
- Do not change.

The answer is 7400.

Write the number.

1. Four thousand two hundred twenty-six

2. Five hundred three and fifteen hundredths

Write in word form.

3. 723

4. 3634.68

Round to the place value shown.

5. Nearest hundred. 5372

6. Nearest tenth. 0.3815

7. 4331

8. 10.091

WORKSHOP 2: Comparing Numbers

Which number is greater, 586.900 or 586.679?

To compare the numbers, compare each digit beginning at the left.

<table>
<thead>
<tr>
<th>5</th>
<th>8</th>
<th>6</th>
<th>.</th>
<th>9</th>
<th>0</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>8</td>
<td>6</td>
<td>.</td>
<td>6</td>
<td>7</td>
<td>9</td>
</tr>
</tbody>
</table>

same same same

9 is greater than 6. So 586.900 is greater than 586.679.

Which number is greater?

9. 221 or 214

10. 4379 or 4397

11. 15.7 or 15.712

12. 12.124 or 12.13
REVIEW OF FUNDAMENTALS

WORKSHOP 7: Writing Fractions as Decimals and Decimals as Fractions

Any fraction can be renamed as a decimal and any decimal as a fraction. To change a fraction to a decimal, divide the numerator by the denominator.

\[
\frac{3}{4} \rightarrow 8 \div 5 = 1.50 \quad \frac{17}{50} \rightarrow 0.34 \quad \frac{48}{20} \rightarrow 2.40 \quad \frac{16}{40} \rightarrow 0.40
\]

To rename a decimal as a fraction, name the place value of the digit at the far right. This is the denominator of the fraction.

\[
0.87 = \frac{87}{100} \\
0.08 = \frac{8}{100} = \frac{2}{25} \\
6.375 = 6 \frac{375}{1000} = 6\frac{3}{8}
\]

Write as decimals. Round answers to the nearest hundredth.

1. \(\frac{3}{4}\) \hspace{1cm} 2. \(\frac{1}{4}\) \hspace{1cm} 3. \(\frac{3}{8}\) \hspace{1cm} 4. \(\frac{7}{10}\)

5. \(4\frac{1}{2}\) \hspace{1cm} 6. \(5\frac{1}{2}\) \hspace{1cm} 7. \(8\frac{1}{3}\) \hspace{1cm} 8. \(2\frac{2}{3}\)

Write as fractions in lowest terms.

9. 0.4 \hspace{1cm} 10. 0.07 \hspace{1cm} 11. 0.83 \hspace{1cm} 12. 3.23

13. 1.25 \hspace{1cm} 14. 2.45 \hspace{1cm} 15. 7.830 \hspace{1cm} 16. 9.75

WORKSHOP 8: Writing Decimals as Percents and Percents as Decimals

Percent means divided by 100. To write a percent as a decimal, move the decimal two places to the left and drop the % sign.

\[
15\% = 0.15 \\
56.2\% = 0.562 \\
134\% = 1.34
\]

To write a decimal as a percent, move the decimal two places to the right and add a % sign.

\[
0.25 = 25\% \\
3.42 = 342\% \\
0.005 = 0.5\%
\]

Write as decimals.

1. 19\% \hspace{1cm} 2. 25\% \hspace{1cm} 3. 47\% \hspace{1cm} 4. 8\%

5. 244\% \hspace{1cm} 6. 104\% \hspace{1cm} 7. 39.8\% \hspace{1cm} 8. 17.2\%

Write as percents.

9. 0.82 \hspace{1cm} 10. 0.51 \hspace{1cm} 11. 0.019 \hspace{1cm} 12. 3.17
WORKSHOP 12: Reading Tables and Charts

To read a table, find the column containing one of the conditions of the information you are looking for. Look across the row containing the other condition until it crosses the column you found. Read the answer.

What is the total school tax rate for Swanton Township schools?

Find the column headed "Total."

Find the row for Swanton Township.

Read across the Swanton Township row to the "Total" column.

The total school tax rate for Swanton Township is $96.20.

1. What is the general school tax rate for Oak Harbor City?

2. What is the construction tax rate for Clay City?

3. Which school district has the lowest total school tax rate?

4. Which school district has the lowest construction school tax rate?

5. Which school district has a general school tax rate of $87.00?

WORKSHOP 13: Constructing Graphs

A bar graph is a picture that graphically displays and compares numerical facts in the form of vertical or horizontal bars.

1. Construct a vertical bar graph of the given data.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>$0.95</td>
<td>1.00</td>
<td>1.10</td>
<td>1.35</td>
<td>1.15</td>
</tr>
</tbody>
</table>
Markdown and Sale Price

Stores often sell products at sale prices that are lower than their regular selling prices. The markdown or discount is the amount of money that you save by purchasing a product at the sale price. The markdown rate or discount rate of an item is its markdown expressed as a percent of its regular selling price.

\[
\text{MARKDOWN} = \text{REGULAR SELLING PRICE} - \text{SALE PRICE}
\]

\[
\text{MARKDOWN} = \text{MARKDOWN RATE} \times \text{REGULAR SELLING PRICE}
\]

\[
\text{SALE PRICE} = \text{REGULAR SELLING PRICE} - \text{MARKDOWN}
\]

For problems 1 and 2, determine the markdown.

1. **2C. Button front tank.**
   Ribbed cotton in blue, olive or yellow. S-M-L.
   Orig $29, sale $20.30

2. **2D. Tattersall blouse.**
   Roll sleeves, patch pockets. Cotton; sizes 4-14.
   Reg $48, sale $36

For problems 3 and 4, determine the markdown and the sale price.

3. **Petites Coordinates**
   25% Off Reg 40.00
   Blazers, skirts & pants in navy, black or tan. Sizes 5-16.

4. **Spring Jackets**
   up to 30% Off
   Wide range of basic and fashion coors in nylon or poplin jackets.
   S, M, L, XL.
   Reg 59.99

5. Wicker Book Store has paperback books marked down 25%. What is the total sale price of 4 books that regularly sell for $8.95, $9.55, $6.85, and $12.95?

6. During a September Sale, Kauffman Kamper Supply has marked down all items 30%. Judy Vaughn purchases a deluxe portable grill that regularly sells for $79.99 and a set of barbecue tools that regularly sells for $19.98. What is the total sale price?

7. Lillian Morrin shopped at Bauman's Department Store during the end-of-summer sale. All luggage was marked down 35%. She purchased a suitcase that regularly sells for $74.95, a garment bag that regularly sells for $60.00, and a tote bag that regularly sells for $39.99. What is the total sale price Lillian paid?

8. During the Winter Clearance Sale, Townsend Cyclery has marked down all bicycles 20% and all accessories 25%. You purchase a Super Sport 26-inch 10-speed bike that regularly sells for $199.95, a chain and lock that regularly sell for $16.99, a tire gauge and tire pump that regularly sell for $24.49, and a deluxe generator and light package that regularly sells for $29.95. What is the total sale price for your purchases?
Preparing a Budget Sheet

A budget sheet outlines your total monthly expenses. It includes your living expenses, fixed expenses, and all annual expenses.

\[
\text{TOTAL MONTHLY EXPENSES} = \text{MONTHLY LIVING EXPENSES} + \text{MONTHLY FIXED EXPENSES} + \text{MONTHLY SHARE OF ANNUAL EXPENSES}
\]

Diane and Cory Legrand have a combined monthly net income of $1800. Use their budget sheet to answer the following questions.

1. What is the total of their monthly living expenses?

2. What is the total of their monthly fixed expenses?

3. What is the total of their annual expenses?

4. What is the monthly share of their annual expenses?

5. What is the total of their monthly expenses?

6. Are the Legrands living within their monthly net income?

7. The Legrands receive pay raises that increase their net income by 5%. What is their new combined monthly net income?

8. Can the Legrands meet their total monthly expenses with their new monthly income?

9. If you have the same budget and the same net income as the Legrands had before they received pay increases, on what items would you try to reduce your spending in order to live within your monthly net income?
Social Security Tax

The Federal Insurance Contributions Act (F.I.C.A.) requires employers to deduct 7.65% of the first $54,600 of your annual income for social security taxes. The employer must contribute an amount that equals your contribution.

**SOCIAL SECURITY TAX WITHHELD = TAX RATE × GROSS PAY**

Use the F.I.C.A. tax rate of 7.65% of the first $54,600 to solve.

1. Roland Purcell, a draftsman, is paid on a monthly basis. His gross pay this month is $1900. His earnings to date for this year are $20,900. How much is deducted this month for social security tax?

2. Mark Traynor, a store manager, is paid on a weekly basis. His gross pay this week is $412.96. His earnings to date for this year total $19,822.08. How much is deducted from his paycheck this week for social security tax?

3. Maria Whetstone, a boiler operator, is paid on a weekly basis. Her gross pay this week is $502.16. Her earnings to date for this year are $20,086.40. How much is deducted from her paycheck this week for social security tax?

4. Tom Zetts is an aerospace engineer. He earns $29,960 a year and is paid on a semimonthly basis. How much is deducted per pay period for social security tax?

5. Renae Walters is paid a salary of $6000 per month.
   a. How much is deducted in January for social security tax?
   b. How much is deducted in December for social security tax?

6. Craig Linn earns $59,563.64 per year. He is paid monthly.
   a. How much is deducted in October for social security tax?
   b. How much is deducted in November for social security tax?
   c. How much is deducted in December for social security tax?

In a few years the F.I.C.A. tax rate will be 7.65% of the first $56,600.

7. a. Rework Problem 1 using this information.
    b. Rework Problem 5 using this information.
    c. Rework Problem 6 using this information.

8. You earn $1100 per week.
   a. How many more paychecks would you have F.I.C.A. withheld at the new maximum of $56,600?
   b. How much more per year would be withheld?
WORKSHOP 28: PROBLEM SOLVING—MAKING A DIAGRAM

Venn Diagrams show relationships between several groups of people or objects and can be used to solve problems.

EXAMPLE

Of the 40 employees at Morse Tool and Die, 30 are signed up for health care, 20 are signed up for vision care, 18 are signed up for dental care, 14 are signed up for health and vision care, 13 for health and dental, 6 for vision and dental, and 3 for all three. How many are not signed up for any of the three?

SOLUTION

Start with the three signed up for all three. That leaves three for vision and dental, ten for health and dental, and eleven for health and vision. Then that leaves two for dental only, three for vision only, and six for health care only.

The total accounted for is 38, found by

\[
6 + 3 + 2 + 11 + 10 + 3 + 3 \quad \text{and} \quad 40 - 38 \text{ leaves 2 not signed up for anything.}
\]

1. A survey of 200 people revealed that 170 owned an answering machine, 125 owned a cordless phone, and 98 owned both. How many of the 200 do not own either?

2. Of 20 investors interviewed on the evening news, 13 owned stock, 18 owned mutual funds, 11 owned gold, 11 owned stocks and mutual funds, 10 owned mutual funds and gold, 8 owned stocks and gold, and 7 owned all three. How many investors owned gold but not stocks or mutual funds?