

YEAR 2018 UPDATE
for the textbook
Business Math: Using Percents
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3.3 FICA and FUTA

The previous two sections of this chapter discussed the computation of gross earnings. Typically, employees do not receive the amount of their gross earnings in their paycheck, because various employment taxes, and possibly other benefits, are deducted. In addition, there are employment taxes which are paid directly by the employer, and not deducted from an employee's paycheck. Self-employed persons are also subject to employment taxes.

Employment taxes are basically computed as a percentage of wages or income. However, taxable income is not always the same as gross income, since some wages are often excluded from tax. Tax rates and wage bases change annually, to reflect cost of living adjustments or the desires of Congress. Each year, the Internal Revenue Service releases the Employer's Tax Guide (Publication 15, Circular E), which will contain employment tax information for the current year. The information in this update is accurate as of January 1, 2018.

Some taxes assess the same rate on every taxpayer, and some taxes use a scale of rates. In this section, we shall discuss **flat taxes**, where (almost) every taxpayer pays the same rate. The payroll taxes that are generally flat include the FICA (Social Security and Medicare) taxes, the SECA (Self-Employment) tax, and the FUTA and SUTA (unemployment) taxes.

Although flat taxes always use the same computational rate, definitions of the base on which the rate is assessed can alter the effect a tax has on different taxpayers. A flat tax may have an income **floor**, below which no income is taxed (alternatively, income below the floor is taxed at a 0% rate). Flat taxes may also have an income **ceiling**, above which no income is taxed (alternatively, income above the ceiling is taxed at a 0% rate.) The **wage base** of a flat employment tax is the income earned between the floor and the ceiling.

In 1935, the U.S. Congress passed the Social Security Act, which provided basic retirement benefits to old age survivors. The portion of the act which mandates tax withholding is sometimes referred to as the **Federal Insurance Contributions Act**, or **FICA**. Since 1935, because of changes to the system, disability and medical benefits are also provided. Due to the increasing availability of benefits, the proportion of eligible recipients in the population, and the increasing cost of living, the revenue required from the FICA tax has also increased. Figure 1 shows the change in FICA rates. From an original rate of 1% on each employee's first \$3,000 of gross earnings in 1937, the tax reached 7.65% on the first \$51,300 of each employee's gross earnings in 1990.

In the following year, the portion of the tax which provided for medical benefits was separated from the rest of the tax, and two separate computations became necessary. These are the **Social Security tax** (or **Old Age Survivors and Disability Insurance**, abbreviated **OASDI**) and the **Medicare tax** (or **Hospital Insurance**, sometimes abbreviated **HI**). **Supplemental Medical Insurance**, or **SMI**, is also part of the Medicare program, and is partially funded by the tax, and partially paid for by recipients of that program. In 2013, the introduction of the **Additional Medicare Tax** necessitated a third computation. Unfortunately, the combined FICA tax is sometimes called the Social Security tax, even in some official descriptions. This leads to confusion between the whole FICA tax and the part designated for OASDI. In this text, we shall use the term Social Security only for the OASDI portion of FICA. The 2018 rates for these taxes are:

- Social Security: 6.2% of the first \$128,400 of gross wages
- Medicare: 1.45% of all gross wages
- Additional Medicare: 0.9% of gross wages over \$200,000

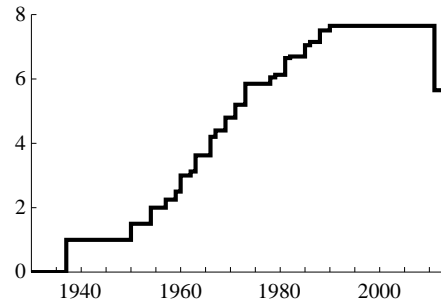


Figure 1: FICA Rates, as a percent

Employers will deduct the tax amounts, using these rates, from the gross earnings of their employees. Furthermore, employers are also obligated to pay matching shares of the Social Security and Medicare taxes (but not the Additional Medicare tax). Both the employee deductions and the employer's shares will be forwarded to a financial institution authorized to collect these taxes. Although they are submitted together, Social Security and Medicare taxes are generally reported separately, since the tax returns for businesses require separate accounting for these taxes.

The basic Medicare tax is truly a flat tax, in which every taxpayer pays exactly the same rate of their gross income. The Social Security tax, however, has a wage ceiling, beyond which no tax is assessed, and the Additional Medicare tax has a floor before any tax is assessed. The following examples illustrate some of the variety of situations that can occur.

Example 1

Brenda had \$1,186 in gross earnings for her current pay period, and her prior cumulative earnings were \$116,582. How much will be deducted from her current paycheck for FICA taxes?

Solution

The sum of her current and her prior cumulative gross earnings,

$$116,582 + 1,186 = 117,768$$

does not exceed the \$128,400 ceiling (as it won't for most employees). Therefore, we tax all of her current earnings at the rates given above. The Social Security computation is:

$$1186 \times 0.062 \approx 73.53$$

and the Medicare computation is:

$$1186 \times 0.0145 \approx 17.20$$

Since her cumulative earnings are well below \$200,000, Brenda owes no Additional Medicare tax. Her Social Security and Medicare tax deductions are \$73.53 and \$17.20, respectively. Brenda's employer would match these amounts.

Example 2

Chesley had gross earnings of \$1,352 for her current pay period, and her prior cumulative earnings were \$127,838. How much will be deducted for FICA taxes for this pay period?

Solution

The sum of Chesley's current and prior cumulative gross earnings,

$$127,838 + 1352 = 129,190$$

does exceed the \$128,400 earnings ceiling for Social Security tax. Only that portion of the current \$1,352 of earnings below the \$128,400 ceiling can be taxed for Social Security. The Social Security computation is:

$$128,400 - 127,838 = 562$$

$$562 \times 0.062 \approx 34.84$$

All of her current earnings are taxed for Medicare.

$$1352 \times 0.0145 \approx 19.60$$

Chesley's Social Security and Medicare tax deductions this week are \$34.84 and \$19.60, respectively, and she owes no Additional Medicare tax. Chesley's employer would match these amounts.

Example 3

Danielle had gross earnings of \$3,472 for the current pay period, and had prior cumulative earnings of \$198,427. How much will be deducted from her check for FICA taxes?

Solution

Her prior cumulative gross earnings exceed the social security wage ceiling of \$128,400, so her current earnings are not subject to Social Security tax. But all of her current earnings are taxed for Medicare.

$$3472 \times 0.0145 \approx 50.34$$

The sum of Danielle's current and prior cumulative earnings,

$$198,427 + 3472 = 201,899$$

does exceed the \$200,000 floor for Additional Medicare Tax. Only that portion exceeding \$200,000 can be taxed. The Additional Medicare Tax computation is:

$$201,899 - 200,000 = 1899$$

$$1899 \times 0.009 \approx 17.09$$

Therefore, Danielle's Medicare tax deduction is \$50.34, her Additional Medicare deduction is \$17.09, and there is no Social Security tax deduction. Danielle's employer would match the \$50.34 Medicare tax only.

Example 4

Ernestine had gross earnings of \$3,251 for the current pay period, and had prior cumulative earnings of \$212,655. How much will be deducted from her check for FICA taxes?

Solution

Her prior cumulative gross earnings exceed the social security wage ceiling of \$128,400, so her current earnings are not subject to Social Security tax. But all of her current earnings are taxed for Medicare, and since her prior cumulative earnings are over \$200,000, she also has Additional Medicare tax withheld on all of her current gross earnings.

$$3251 \times 0.0145 \approx 47.14$$

$$3251 \times 0.009 \approx 29.26$$

Therefore, Ernestine's Medicare tax deduction is \$47.14, her Additional Medicare deduction is \$29.26, and there is no Social Security tax deduction. Ernestine's employer would match the \$47.14 Medicare amount only.

The most difficult situations among these examples arise when a taxpayer's cumulative income passes either the Social Security ceiling or the Additional Medicare floor. When you do these computations, take caution that you are taxing the appropriate amount. For Social Security, the taxable amount is below the ceiling, and for Additional Medicare, it is above the floor.

Self-employed persons were first included in the Social Security program in 1951. The **SECA (Self Employment Contributions Act)** tax, or **Self-Employment Tax**, is the method by which self-employed people make contributions for Social Security and Medicare. In 2018, the self-employed tax rates are:

- 15.3% of the first \$128,400 of net earnings
- 2.9% of net earnings between \$128,400 and \$200,000
- 3.8% of net earnings over \$200,000

The different rates are the sum of the rates for employee deductions and employer shares. Essentially, self-employed people are required to pay both the employee's share and the employer's share, since they effectively employ themselves. Notice also that the tax is assessed on net earnings, not on gross earnings. The reason is that self-employed people are taxed in the same manner as businesses, on their net profit. Generally, self-employed people pay quarterly estimated taxes, as opposed to a more frequent withholding from an employee paycheck.

Since the employer half of the Self-Employment tax represents a business expense, current law provides a reduction in a self-employed person's earnings before the tax is applied. The sum of the tax rates for the employer shares of Social Security and Medicare is 7.65%, and the Self-Employment Tax includes this reduction for all earnings levels, not just earnings below the Social Security ceiling. After the 7.65% reduction, a self-employed person will be taxed on the remaining 92.35% of his earnings.

Example 5

Mike is self-employed, and had \$34,533 in net earnings for the first quarter of 2018. How much will he owe in Self-Employment Tax?

Solution

First, we reduce the earnings by 7.65% (which means 92.35% of the earnings will be taxed).

$$34,533 \times 0.9235 \approx 31,891.23$$

Since this is the first quarter, there are no prior cumulative earnings, and Mike's net earnings of \$31,891.23 do not exceed the \$128,400 level. Therefore, we tax the net earnings at 15.3%.

$$31,891.23 \times 0.153 \approx 4879.36$$

Mike will owe \$4,879.36 for Self-Employment Tax for the first quarter, which represents his share of the Social Security and Medicare taxes.

The Social Security Act of 1935 also made provision for federal unemployment taxes and benefits, in a section often called the **Federal Unemployment Tax Act**, or **FUTA**. Employers, not employees, are required to pay the unemployment tax. Every state has also enacted a state unemployment tax, frequently referred to as **SUTA**. The federal government encouraged states to maintain their own unemployment programs by making the federal unemployment tax rate that a company pays depend on their state unemployment tax obligation. For this reason, we shall begin

with a discussion of state unemployment taxes.

Many states use an **experience rating** system to determine state unemployment tax rates. That is, companies whose ex-employees receive more unemployment benefits pay a higher rate than companies whose ex-employees receive fewer benefits. For example, the 2018 state unemployment tax rate in Kansas varies from 0.20% to 7.60%. This rate is paid by the employer (not deducted from the employee's earnings) on the first \$14,000 of each employee's gross earnings in each year.

Employers are required to pay both federal and state unemployment taxes. The official 2018 FUTA rate is 6.0% of the first \$7,000 of each employee's gross earnings in each year. However, employers in states where the highest state unemployment rate is at least 5.4% are entitled to a 5.4% credit toward their FUTA taxes, unless the state has had outstanding loans from the federal government for their unemployment compensation programs, in which case the credit is smaller. Since the highest state rate in Kansas is greater than 5.4%, a credit is available to every Kansas employer, though certain conditions apply (e.g. timely payment of SUTA taxes). This provision effectively produces a net FUTA rate in Kansas of 0.6% of the first \$7,000 of each employee's gross earnings in each year. In this book, we shall use this net FUTA rate in Kansas, rather than the official FUTA rate, in each example and exercise.

Example 6

Joe Murphy's last biweekly gross earnings were \$1,895. His previous cumulative income was \$5,750. His employer has a state unemployment tax rate of 4.80% on the first \$14,000. Find his employer's federal and state unemployment tax liability.

Solution

The computations for unemployment taxes proceed in a manner very similar to the computations for the FICA taxes. The sum of Joe's current and prior cumulative gross earnings,

$$5750 + 1895 = 7645$$

exceeds the \$7,000 earnings ceiling for the federal unemployment tax, but not the \$14,000 earnings ceiling for the state unemployment tax. Only those amounts below the ceilings are taxed. The FUTA computation is:

$$7000 - 5750 = 1250$$

$$1250 \times 0.006 = 7.50$$

The state unemployment tax computation is:

$$1895 \times 0.0480 = 90.96$$

Joe's employer will be paying \$7.50 in federal unemployment tax, and \$90.96 in state unemployment tax, as a result of Joe's earnings during the last two weeks.

Notice that the FUTA ceiling of \$7,000 was passed in the previous example. This means that Joe's employer will not owe any more FUTA tax as a result of Joe's employment in future weeks this year, though some state unemployment tax may be owed.

Most employers have more than a single employee. Unemployment taxes are paid on all employees, and computation methods can combine their taxable earnings.

Example 7

Sunflower Doodads has three employees. The earnings of each of their employees is given below. Sunflower's state unemployment tax rate is 2.57% on the first \$14,000. Find the federal and state unemployment taxes Sunflower owes on its employees' current gross earnings.

<u>Employee</u>	<u>Current Gross Earnings</u>	<u>Prior Cumulative Gross Earnings</u>
Earl	\$3,522	\$4,132
Janet	\$6,944	\$9,133
Samuel	\$8,442	\$14,113

Solution

For the FUTA tax, only the first \$7,000 of each employee's gross earnings can be taxed. Janet and Samuel both made their first \$7,000 before the current earnings, and none of their current earnings are taxable. Earl did not have \$7,000 in previous earnings, but the sum of his prior and current earnings,

$$3522 + 4132 = 7654$$

does exceed \$7,000. Earl's current taxable earnings can be computed by subtracting the prior cumulative earnings from the wage ceiling. That is,

$$7000 - 4132 = 2868$$

Therefore, the taxable earnings (for FUTA) for all employees were:

<u>Employee</u>	<u>Taxable Earnings</u>
Earl	2868
Janet	0
<u>Samuel</u>	<u>0</u>
Total	2868

Sunflower's FUTA liability for its three employees is:

$$2868 \times 0.006 = 17.21$$

For the state unemployment tax, the first \$14,000 of each employee's gross earnings is taxed. Samuel made his first \$14,000 previously, so none of his earnings are taxable. The sum of Janet's current and previous earnings,

$$6944 + 9133 = 16077$$

will put her earnings over the \$14,000 ceiling, and only that portion under the ceiling,

$$14000 - 9133 = 4867$$

is taxable. The sum of Earl's current and previous earnings (computed above) does not put him over the \$14,000 ceiling, so all of his earnings are taxable.

Therefore, the taxable earnings (for the state unemployment tax) were:

<u>Employee</u>	<u>Taxable Earnings</u>
Earl	3522
Janet	4867
<u>Samuel</u>	<u>0</u>
Total	8389

Based on the total, we can compute the state unemployment tax (rounding to the nearest cent).

$$8389 \times 0.0257 = 215.60$$

These tax amounts, \$17.21 for federal and \$215.60 for state unemployment tax, are paid by Sunflower Doodads, and are not deducted from the earnings of their employees.

Exercises 3.3

A

Find the amounts of each of the FICA deductions for the current pay period for each of the following employees. Use the 2018 rates of 6.2% on the first \$128,400 of gross earnings, and 1.45% on all gross earnings.

	<u>Employee</u>	<u>Current Gross Earnings</u>	<u>Prior Cumulative Earnings</u>
1.	S. Turner	\$358.41	\$8,662.15
2.	M. Bell	\$583.16	\$30,411.18
3.	F. Whitecross	\$1,225.22	\$15,596.12
4.	T. Baker	\$1,801.61	\$63,017.41
5.	C. Gould	\$2,533.61	\$128,911.59
6.	M. Towne	\$3,142.53	\$133,072.44
7.	P. Baldwin	\$1,984.21	\$127,086.14
8.	G. Falk	\$952.41	\$128,004.33

9.	N. Schwarz	\$1,538.44	\$127,089.41
10.	T. Talley	\$1,985.41	\$126,421.33
11.	Z. McCombs	\$1,246.33	\$125,832.18
12.	O. Ledwith	\$2,013.59	\$125,092.44

Find the amounts of the FUTA and state unemployment taxes for the current pay period for each of the following employees. Assume that the state tax rate is based on the first \$14,000.

	<u>Employee</u>	<u>Current Gross Earnings</u>	<u>Prior Cumulative Gross Earnings</u>	<u>State Tax Rate</u>
13.	F. Todd	\$5,088.64	\$6,959.28	3.15%
14.	T. Silverman	\$827.44	\$13,882.51	5.11%
15.	R. Manley	\$1,528.99	\$13,136.44	0.89%
16.	F. Chastain	\$952.38	\$6,485.47	0.65%

B Use the 2018 tax rates to find the taxes for the current pay period.

- Philip earned \$1,589 last week, and had previous earnings of \$125,994 for the year. Calculate the amounts for the Social Security and Medicare deductions.
- Bill earned \$3,592 on his last biweekly check, and had previous cumulative earnings of \$124,941. Calculate the deductions for Social Security and Medicare.
- Linda earned \$2,095 on her last check, and had previous earnings of \$28,338. Find the deductions for each of the FICA taxes.
- Laura earned \$2,095 on her last check, and had previous earnings of \$186,338. Find the deductions for each of the FICA taxes.
- Grace had previous earnings of \$127,466, and earned \$1,335 on her last check. Find the deductions for each of her FICA taxes.
- Tom had previous earnings of \$128,966, and earned \$1,335 on his last check. Find the deductions for each of his FICA taxes.
- Kelly is self-employed, earned \$795 last week, and had previous earnings of \$19,443. Find the amount of his Self-Employment Tax.
- Karen is self-employed, earned \$3,522 last month, and had previous earnings of \$32,495. Find the amount of her Self-Employment Tax.
- Frederick is married, earned \$2,655 last week, and had previous cumulative earnings of \$126,659. Find the deductions for his FICA taxes.
- Jessie is single, earned \$1,335 for the last two weeks, and her previous cumulative earnings were \$127,092. Find the deductions for her FICA taxes.
- Zebulon earned \$3,258 on his last check, which brings his current cumulative earnings up to \$129,021. Find the deductions for his FICA taxes.
- Althea earned \$2,598 on her last check, which brings her current cumulative earnings up to \$128,085. Find the deductions for her FICA taxes.
- Quincy earned \$816.51 on his last weekly check, and had prior cumulative earnings of \$6,543.26. Find the unemployment taxes on those earnings, if his employer's state tax rate is 5.70% on the first \$14,000.

30. Yuri earned \$925.43 on his last weekly check, and had prior cumulative earnings of \$6,827.55. Find the unemployment taxes on those earnings, if his employer's state tax rate is 6.20% on the first \$14,000.
31. Linda earned \$6,433.88 on her last semimonthly check, and had prior cumulative earnings of \$7,931.47. Find the unemployment taxes on those earnings, if her employer's state tax rate is 2.77% on the first \$14,000.
32. Terry earned \$5,478.25 on her last biweekly check, and had prior cumulative earnings of \$8,829.33. Find the unemployment taxes on those earnings, if her employer's state tax rate is 0.41% on the first \$14,000.

Find the federal and state unemployment tax liability for the following employers. Assume that the state tax rate is based on the first \$14,000.

	<u>Employer</u>	<u>State Tax Rate</u>	<u>Employee</u>	<u>Current Gross Earnings</u>	<u>Prior Cumulative Gross Earnings</u>
33.	Speedy Sneakers	5.28%	E. Bender	\$864.22	\$4,251.33
			T. DeLeon	\$1,141.92	\$11,851.33
			F. Raleigh	\$952.33	\$6,431.22
34.	Herb's Herbs	0.34%	J. Thompson	\$966.44	\$13,231.88
			P. Waters	\$455.20	\$5,842.33
			L. Wilson	\$633.51	\$6,588.39
			E. Wings	\$826.87	\$7,466.53
			S. Zoellner	\$966.32	\$11,668.80

3.4 Withholding for Income Tax

Since 1913, the federal government has collected a **Federal Income Tax**, based on the incomes of individual citizens. Today it is the largest single source of revenue for the federal government. Since its inception, the federal income tax has assigned higher tax rates (not simply higher amounts of tax) to taxpayers with larger incomes, and lower rates to taxpayers with lower incomes. That is, the federal income tax is a multi-rate tax, and uses **tax brackets**.

In order to facilitate collection of the federal income tax, employers are required by law to deduct amounts from the gross earnings of each of their employees. The required deduction for the payment of federal income taxes is called the **Federal Withholding Tax**, or **FWT**. The withholding tax computation is designed to predict each employee's income tax obligation. After an employer deducts the withholding tax, it is sent to a financial institution authorized to collect taxes for the U.S. Treasury. When individual taxpayers file their returns after the end of the year, the accumulated Federal Withholding Taxes are applied to their Federal Income Tax bill.

Most states also tax the income of individuals. State withholding taxes are usually collected from employees through payroll deductions, in the same fashion that federal withholding taxes are collected. Sometimes the state withholding tax is abbreviated as **SWT**.

The amount of the withholding tax (for federal and state taxes) depends on five factors. These factors are:

- Gross earnings for the payroll period
- Marital status
- Number of allowances claimed
- Length of the payroll period
- Method used for the computation

The first four factors are used to attempt to reach some sort of fairness in our tax system. Income taxes are based on the principle that those individuals who earn larger incomes ought to be subject to larger taxes. Therefore, gross earnings must be a part of the withholding computation. However, the tax code also recognizes that some incomes are used to support only a single individual, and some incomes support large families. In an effort to recognize the greater needs of a family, the income tax code includes different tax tables for married individuals, as well as exemptions for each family member. Exemptions on the income tax correspond to allowances on the withholding tax. Each employee provides this information to their employers at the time they are hired when they fill out a W-4 form. Lastly, employees who are paid less frequently will need to have larger tax deductions from each paycheck in order to meet their income tax obligation.

There are two basic methods by which withholding taxes may be computed. These methods provide approximately, but not exactly, the same withholding tax amounts. The method we shall use is the **Percentage Method of Withholding**. This method requires fewer tables, and the computations are based on the conceptual framework of the tax system. The main advantage of the other method (the **Wage-Bracket** or **Table Method of Withholding**) is that the percentages are built into the tables and do not need to be computed.

Due to significant changes in Federal income tax rates at the end of 2017, the updated 2018 Federal payroll tax tables are not yet available. We will use 2017 Federal and the 2018 Kansas State income tax withholdings and tax tables.

TABLE 2 — BIWEEKLY Payroll Period				
(b) MARRIED person—				
If the amount of wages (after subtracting withholding allowances) is:			The amount of income tax to withhold is:	
Not over \$333			\$0	
Over—	But not over—			of excess over—
\$333	—\$1,050 . . .	\$0.00 plus 10%		—\$333
\$1,050	—\$3,252 . . .	\$71.70 plus 15%		—\$1,050
\$3,252	—\$6,221 . . .	\$402.00 plus 25%		—\$3,252
\$6,221	—\$9,308 . . .	\$1,144.25 plus 28%		—\$6,221
\$9,308	—\$16,360 . . .	\$2,008.61 plus 33%		—\$9,308
\$16,360	—\$18,437 . . .	\$4,335.77 plus 35%		—\$16,360
\$18,437	. . . . .	\$5,062.72 plus 39.6%		—\$18,437

Figure 2: A portion of the Percentage Method of the Federal Withholding Tables for 2017

Due to the many factors involved in computing withholding for federal income tax, as well as the presence of tax brackets, the Percentage Method of Withholding uses several tables. The combination of a taxpayer's marital status (single or married) and payroll period (weekly, biweekly, semimonthly, monthly, quarterly, semiannually, annually, or daily/miscellaneous) determine the table to be used. (There are 16 possible combinations, but the tables are numbered 1a, 1b, 2a, 2b, etc., up to 8b.) In Figure 2, you will find the 2017 biweekly-married table for the Percentage Method of Withholding. The most commonly used Percentage Method of Withholding Tables for the 2017 Federal Income Tax can be found on pages 23-25 of this update.

Each table, as can be seen in the excerpt from Figure 2, contains a set of rules for computing the withholding tax, depending on the wage and withholding allowances. The range of wages for each separate rule is usually referred to as a "tax bracket", and identified by the tax rate. For example, the Federal Withholding Tax for a married person receiving biweekly checks of \$3,555 (after subtracting withholding allowances) would be found in Table 2b (shown in Figure 2), in the range of wages from \$3,252 to \$6,221. This range of wages is the 25% tax bracket for a married person paid biweekly.

Before using any of the Percentage Method tables, a taxpayer's withholding allowances must be subtracted from their gross income. The 2017 federal withholding allowance values are given in figure 3. The value of each withholding allowance depends on the payroll period. For example, the weekly allowance value is simply the annual allowance value divided by 52, rounded to the nearest dime. The amounts are subject to change annually.

<u>Payroll Period</u>	<u>Allowance</u>
Weekly	\$ 77.90
Biweekly	\$ 155.80
Semimonthly	\$ 168.80
Monthly	\$ 337.50
Annually	\$4,050.00

Figure 3: Federal Withholding Allowance Values, 2017

When using these tax tables to compute the withholding tax, you will generally do the following steps:

1. Find the value of the employee's withholding allowances.
2. Find the taxable earnings by subtracting the allowances from the gross earnings.
3. Find the correct tax bracket in the correct table.
4. Use the rule provided to compute the tax. Information in the rule is always used from right to left.

Example 1

During 2017, Albert, a married employee, was paid \$890 biweekly. On his W-4 form, he claimed two allowances. Compute the Federal Withholding Tax.

Solution

Each 2017 biweekly allowance was worth \$155.80. So two allowances were worth:

$$2 \times 155.80 = 311.60$$

The allowances estimate the portion of the gross income which is not subject to federal income tax. This amount is subtracted from the gross income to find the taxable income, as

follows:

$$890.00 - 311.60 = 578.40$$

For Albert's tax, we need to find the table for a married person paid biweekly. This is found in table 2b (Figure 2). His taxable income (after subtracting withholding allowances), puts him in the 10% tax bracket. This row reads:

Over \$333 But not over \$1,050 \$0.00 plus 10% of excess over \$333

According to this tax rule, we compute the "excess over \$333" by subtracting it from the taxable income, as follows:

$$578.40 - 333.00 = 245.40$$

and then compute 10% of that amount:

$$245.40 \times 0.10 = 24.54$$

We have found that Albert's federal withholding tax deduction was \$24.54.

Example 2

Barry, a single employee, was paid \$3,746.65 semimonthly during 2017. On his W-4 form, he claimed 3 allowances. Compute his Federal Withholding Tax.

Solution

The procedure is almost identical, except that Barry is in a higher tax bracket than Albert was. Three federal withholding allowances are worth:

$$3 \times 168.80 = 506.40$$

This leaves a taxable income of:

$$3746.65 - 506.40 = 3240.25$$

On Table 3a, this income puts Barry in the 25% tax bracket. This row reads:

Over \$1,677 But not over \$3,925 \$217.75 plus 25% of excess over \$1,677

The tax is then computed as follows:

$$3240.25 - 1677.00 = 1563.25$$

$$1563.25 \times 0.25 \approx 390.81$$

$$390.81 + 217.75 = 608.56$$

Therefore, Barry's federal income tax withholding was \$608.56. Notice that in this example, one additional step was necessary. The reason is that Barry was not in the lowest non-zero tax bracket, and therefore the \$217.75 amount was the tax on the first \$1,677 of his taxable income.

When you work problems involving withholding taxes, remember that the order of operations is critical. Using the steps in the wrong order, or omitting steps, will produce incorrect answers.

These examples illustrate the standard approach to computing withholding taxes. However, if an employee receives supplemental pay (usually resulting in a separate paycheck), the rules for withholding are often different.

In addition to withholding for the Federal Income Tax, 41 states (as of 2015) assess a state income tax on the earnings of employees. In all of these states, withholding from an employee's paycheck is required. In general, the **state withholding tax** computation proceeds in a fashion similar to the Federal Withholding Tax, but variations are common. State withholding tax is often abbreviated as **SWT**. Excerpts from the 2018 Kansas SWT tables can be found on pages 23-25 of this update.

Example 3

Kara earned \$2,235 for the last two weeks. She is single and claims 2 allowances. Find her state withholding tax.

Solution

Each state biweekly allowance is worth \$86.54. So two allowances are worth:

$$2 \times 86.54 = 173.08$$

We then subtract to obtain the taxable income.

$$2235.00 - 173.08 = 2061.92$$

On Table 2a of the SWT table, we find that Kara's taxable earnings are in the 5.7% tax bracket. So the computation proceeds as follows:

$$2061.92 - 1269.00 = 792.92$$

$$792.92 \times 0.057 \approx 45.20$$

$$45.20 + 48.17 = 93.37$$

Therefore, \$93.37 will be withheld from Kara's paycheck for state withholding tax.

Exercises 3.4

A Find the federal and state withholding taxes for the current pay period for each of the following employees.

	<u>Employee</u>	<u>Earnings</u>	<u>Pay period</u>	<u>Status</u>	<u>Allowances</u>
1.	D. Carter	\$1,800	monthly	M	3
2.	F. Ellis	\$625	weekly	M	2
3.	H. Gardner	\$958.25	semimonthly	S	1
4.	P. Tuttle	\$1,014.18	biweekly	S	1
5.	V. Sanchez	\$948.51	weekly	S	3
6.	K. Johnson	\$2,958.41	biweekly	M	0
7.	L. Porter	\$6,853.55	monthly	S	0
8.	T. Pritchett	\$7,341.88	semimonthly	M	6

- B**
- Joe is married and claims three allowances. The gross earnings on his last biweekly check were \$1,895. Find Joe's federal and state withholding taxes for this pay period.
 - Diana's gross earnings for last week were \$589. She is single and claims two allowances. Find the deductions for her federal and state withholding taxes for this pay period.
 - Walter's gross earnings were \$4,596 on his last monthly check. He is single and claims one allowance. Find his federal and state withholding taxes for this pay period.
 - Lorraine is married and claims 5 allowances. Her gross earnings on her last semimonthly check were \$2,095. Find her federal and state withholding taxes for this pay period.
 - Carla is married and claims no allowances. On last week's semimonthly check, her gross earnings were \$8,399.52. Find her federal and state withholding taxes for this pay period.
 - John is single and claims 3 allowances. His gross earnings were \$2,533.41 for the last two weeks. Find his federal and state withholding taxes for this pay period.
 - Linda is married and claims 6 allowances. Her gross earnings last week were \$952.44. Find her federal and state withholding taxes for this pay period.
 - Steve is married and claims 10 allowances. The gross earnings on his last monthly check were \$3,152.44. Find his federal and state withholding taxes for this pay period.
 - Jeanne receives gross earnings of \$2,554.33 every month. She is married and claims 4 allowances. Find her federal and state withholding taxes for this pay period.
 - Don receives gross earnings of \$679.92 every week. He is single and claims one allowance. Find his federal and state withholding taxes for this pay period.
 - Lucille is single and claims two allowances. Her gross earnings for the last two weeks were \$1,336.50. Find her federal and state withholding taxes for this pay period.
 - Larry is married and claims three allowances. His gross earnings for the last half-month were \$1,446.25. Find his federal and state withholding taxes for this pay period.

3.5 After Taxes

In the previous two sections we discussed several specific taxes, namely federal and state withholding tax, Social Security, Medicare and Additional Medicare, and federal and state unemployment tax. These payroll taxes are those which are incurred by either the employee or the employer as a result of the employee-employer relationship. Both employees and employers pay many other taxes, but most others are not as a result of employment. (For example, employees pay sales tax on purchases, and employers pay income taxes on profits.)

Some payroll taxes are deducted from the gross earnings of employees, and some are paid by the employer from his revenues. It is very important to remember which taxes are paid by which party. We can summarize the situation regarding required payroll taxes as follows:

Employee Deductions

Federal Withholding Tax (FWT)
State Withholding Tax (SWT)
Social Security (OASDI)
Medicare (HI, SMI)
Additional Medicare

Employer Expenses

Social Security (OASDI)
Medicare (HI, SMI)
Federal Unemployment Tax (FUTA)
State Unemployment Tax (SUTA)

The Social Security and Medicare taxes show up in each list, since they are both an employee deduction and an employer expense. That is, the employer must also set aside a certain amount in addition to that deducted from an employee's check, and submit both portions to the federal government.

Both employer and employee shares of the FICA taxes, and the employee deductions for the federal withholding tax, are sent to a financial institution authorized by the U.S. Treasury to collect these taxes. Businesses with large tax liabilities may be required to make these payments almost daily, whereas very small businesses may only need to make annual payments. In any case, businesses must submit a quarterly federal tax return (Form 941) reporting the details. Federal unemployment taxes are paid separately from FICA and FWT, and are reported annually (on Form 940). State withholding and unemployment taxes are, of course, paid and reported to the state, not the federal, government.

In addition to these required payroll taxes, employees often choose to have the costs of other benefits deducted from their earnings (e.g. union dues, medical benefits, retirement annuities, and savings bonds), while employers may often provide other benefits for their employees (e.g. medical benefits, pension plans, and vacation time). All of the tax deductions, and any other deductions, are subtracted from an employee's gross earnings to obtain his **net earnings**. Also, additional taxes and other costs to the employer will increase the employer's cost of doing business beyond the gross earnings of his employees.

Example 1

Gina is married, claims 5 withholding allowances, and earned \$2,533 on her last weekly check. Her prior cumulative earnings were \$4,987.33. Nelson Automotive's state unemployment tax rate is 3.88% on the first \$14,000. Find Gina's net pay for the week.

Solution

There required deductions are for federal and state withholding taxes, Social Security, Medicare, and Additional Medicare. We first compute the Federal Withholding Tax.

$$\begin{aligned}5 \times 77.90 &= 389.50 \text{ allowances} \\2533.00 - 389.50 &= 2143.50 \text{ taxable} \\ \text{Table 1b: } \$201.05 & \text{ plus } 25\% \text{ of excess over } \$1626 \\2143.50 - 1626.00 &= 517.50 \\517.50 \times 0.25 &\approx 129.38 \\129.38 + 201.05 &= \underline{\$330.43}\end{aligned}$$

A similar computation will produce the state withholding tax.

$$\begin{aligned}5 \times 43.27 &= 216.35 \text{ allowances} \\2533.00 - 216.35 &= 2316.65 \text{ taxable} \\ \text{Table 1b: } \$48.17 & \text{ plus } 5.7\% \text{ of excess over } \$1298 \\2316.65 - 1298.00 &= 1018.65 \\1018.65 \times 0.057 &\approx 58.06 \\58.06 + 48.17 &= \underline{\$106.23}\end{aligned}$$

The total of Gina's \$4,987.33 prior cumulative earnings and \$2,533 current earnings is only \$7,520.33, and does not exceed the Social Security ceiling of \$128,400. Therefore, Social Security tax is computed at the 6.2% rate.

$$2533.00 \times 0.062 \approx \underline{\$157.05}$$

Since Gina's earnings cumulative earnings will remain below the \$200,000 floor for the Additional Medicare tax, we only need to compute the Medicare tax at a 1.45% rate.

$$2533.00 \times 0.0145 = \underline{\$36.73}$$

So Gina has deductions of \$330.43 for Federal Withholding Tax, \$106.23 for state withholding tax, \$157.05 for Social Security, and \$36.73 for Medicare. We can add these to obtain the total deductions, and subtract from gross pay to obtain Gina's net pay.

$$\begin{aligned}330.43 + 106.23 + 157.05 + 36.73 &= \$630.44 \text{ deductions} \\2533.00 - 630.44 &= \$1902.56 \text{ net pay}\end{aligned}$$

Gina's net pay was \$1,902.56 for the week.

Example 2

Using Example 1, find the cost to Nelson Automotive for employing Gina this week.

Solution

Nelson Automotive incurred four required payroll taxes, Social Security and Medicare, and federal and state unemployment taxes. The employer share of Social Security also uses a 6.2% rate.

$$2533.00 \times 0.062 \approx \underline{\$157.05} \text{ (a matching share)}$$

The employer's Medicare tax is computed at a 1.45% rate, and does not include the Additional Medicare Tax.

$$2533.00 \times 0.0145 = \underline{\$36.73} \text{ (a matching share)}$$

To compute the Federal Unemployment Tax, we note that the sum of her prior cumulative earnings and her current earnings (\$7,520.33, as found in example 1) did exceed the \$7,000 limit. Therefore, we must be careful to tax only that portion of her first \$7,000 in earnings.

$$\begin{aligned} 7000.00 - 4987.33 &= 2012.67 \\ 2012.67 \times 0.006 &\approx \underline{\$12.08} \end{aligned}$$

Since Gina has not earned her first \$14,000, all of her current earnings are subject to state unemployment tax. The SUTA rate was provided in Example 1.

$$2533.00 \times 0.0388 \approx \underline{\$98.28}$$

Therefore, the taxes incurred by Nelson Automotive include \$157.05 for Social Security, \$36.73 for Medicare, \$12.08 for federal unemployment tax, and \$98.28 for state unemployment tax. To complete the computation, we add all of these taxes to Gina's gross pay for the week.

$$\begin{aligned} 157.05 + 36.73 + 12.08 + 98.28 &= \$304.14 \text{ taxes} \\ 2533.00 + 304.14 &= \$2837.14 \text{ total cost} \end{aligned}$$

In addition to Gina's \$2,533 gross pay, Nelson Automotive incurred \$304.14 in payroll taxes, for a total cost of \$2,837.14 for employing Gina this week.

Employment taxes are a large cost to employers, and a large deduction from an employee's gross pay. Economists measure this tax burden through the use of an **effective tax rate**, which computes the rate of tax paid based on the gross salary, as if all income were taxed at the same rate. Effective tax rates can be computed for single taxes, for all tax deductions, or for both tax deductions and hidden taxes (those paid by the employer are essentially hidden from the employee).

Example 3

Using the details from Example 1, find Gina's effective Federal Withholding Tax rate.

Solution

From Gina's \$2,533 gross salary, she paid \$330.43 in withholding for the federal income tax. Using a PBR diagram, we find

$$R = \frac{P}{B} = \frac{330.43}{2533.00} \approx 0.1305 = 13.05\%$$

Gina paid an effective federal income tax rate of 13.05%.

Notice that Gina's effective tax rate, 13.05%, is not the same as the 25% rate of the tax bracket for her salary. The tax bracket rate is a **marginal tax rate**, or rate paid on the next dollar of earnings. Since much of Gina's income was taxed at a rate lower than her 25% marginal rate, her effective rate was also lower than 25%.

The use of multirate taxes, or the use of tax floors or ceilings, will generally cause the marginal tax rate to be different than the effective tax rate. When the tax rates increase for larger salaries, then the tax is called a **progressive tax**, and the effective tax rate will be lower than the marginal rate. The federal income tax is an example of a progressive tax. On the other hand, when tax rates decrease for larger salaries, then the tax is called a **regressive tax**, and the effective tax rate will be larger than the marginal rate. The use of wage ceilings produces regressive taxes, since the tax bracket for the highest incomes is basically 0%. The Social Security tax and the unemployment taxes are examples of regressive taxes.

Example 4

Using all of the tax deductions from Example 1, find Gina's effective tax rate.

Solution

This question differs from the previous example in that a general tax rate is requested, and a specific tax is not named. The total of Gina's deductions, \$630.44, was computed in Example 1 at the bottom of page 17. Using a PBR formula, we find:

$$R = \frac{P}{B} = \frac{630.44}{2533.00} \approx 0.2489 = 24.89\%$$

Gina's tax deductions produced an effective tax rate of 24.89%. In other words, Gina had 24.89% of her gross pay withheld for taxes.

For comparison, we might also consider Gina's marginal tax rate. Her wages put her in the 25% FWT bracket and the 5.7% Kansas SWT bracket. She also had 6.2% withheld for Social Security and 1.45% for Medicare. All of these rates would apply to her next dollar of earnings, so these rates will have the same base and can be added. The sum of those rates produces a 38.35% marginal tax rate. In other words, even though Gina had 24.89% of her current earnings withheld for taxes, any raise she would receive would be taxed at 38.35%. Effective tax rates of 15% to 30% are quite common, and marginal tax rates can reach 50%.

However, economists will (rightly) point out that the computations we have done so far ignore the taxes hidden from the employee, those that the employer is required to pay without deducting them from the employee's salary. Their argument is that the employer paid a certain amount in labor costs, and if the government had not taken some of that amount, it would all have gone to the employee as salary. This approach will have us compare the total taxes (whether deducted or hidden) to the employer's cost. For example 4, an economist would combine the \$630.44 tax deductions (from Example 1) with the \$304.14 in employer taxes (from Example 2), and compare that total with the employer's cost of \$2,837.14 (from Example 2), for an effective tax rate of 32.94%. That is, 32.94% of the costs paid for Gina's labor went for taxes. In this book, though, we will assume that the base is the employee's gross pay, unless a problem states otherwise.

Exercises 3.5

- B**
1. Joan earns \$1,700 biweekly. She is married and claims 3 allowances. Her employer has a state unemployment tax rate of 4.91%.
 - a. Find her net pay for the first pay period of the year.
 - b. Find Joan's effective tax rate.
 - c. How much does it cost to employ her for the first pay period of the year?
 - d. Express the net pay as a percent of the employer's cost.
 2. Felix is paid \$2,000 per month. He is single and claims 2 allowances. So far this year he has earned \$6,000. His employer has a 2.94% state unemployment tax rate.
 - a. What is his net pay for this month?
 - b. Find the effective tax rate.
 - c. How much does it cost to employ him for this month?
 - d. Express the net pay as a percent of the employer's cost.

3. Karl has earned \$15,000 so far this year. He is married, claims no allowances, and is paid \$1,350 weekly. His employer has a state unemployment tax rate of 5.70%.
- What is his net pay for the next week?
 - Find Karl's effective tax rate.
 - How much does it cost to employ him during the next week?
 - Express the net pay as a percent of the employer's cost.
- C 4. John McDonald is employed by Lee & Sterling. He is married, claims 2 withholding allowances, and earns \$16.97 per hour. His cumulative gross earnings prior to this paycheck were \$7,858.26. This week he worked 49 hours and 45 minutes. The union contract states that time-and-a-half is paid for all hours worked over 38 hours per week. Lee & Sterling's Kansas unemployment tax rate is 3.25% on the first \$14,000.
- Find John McDonald's net pay for this week.
 - Find John's effective tax rate.
 - Find Lee & Sterling's total cost for employing John McDonald this week.
 - Express the net pay as a percent of the employer's cost.

Chapter 3 Review

Summary of Important Concepts

- Pay periods: monthly, semimonthly, biweekly, weekly
- Salary
- Hourly wages and overtime
- Commission and returns
- Piecework and chargebacks
- FICA: Social Security and Medicare
- FUTA & SUTA (unemployment) taxes
- FWT & SWT (withholding) taxes
- Gross pay, net pay, and employer cost
- Effective tax rates

Exercises

1. Ron earns \$2,584 monthly. How much is that each week?
2. Sheila earns \$8.55 per hour, with time-and-a-half paid for working over 40 hours per week. How much is her gross pay, if she works 45 hours and 15 minutes this week?
3. Tom earns a 4% commission on the first \$16,000 worth of sales each month, and 7% on all sales in excess of \$16,000. How much is his commission if he sells \$44,200 this month and has returns of \$2,490?

4. Sally boxes peaches. She earns 35 cents per box for the first 200 boxes per week, and 40 cents per box for boxes beyond the first 200. If she packs 375 boxes, what are her gross earnings?
5. Lynn is married and claims 4 allowances. The gross wages on her biweekly paycheck are \$2,039.88. How much are Lynn's federal and state withholding taxes?
6. Mark had prior cumulative gross earnings of \$127,125.41. The gross wages on this week's paycheck are \$1,566.97. What are the amounts of this week's Social Security and Medicare deductions?
7. Nora is self-employed. If she earned \$19,428.23 during the first quarter of this year, what will be the amounts of her first quarter Self-Employment Tax?
8. Brian earned \$4,889.92 during the first quarter of the year. His employer, Stevens Industries, has a Kansas unemployment tax rate of 2.66% on the first \$14,000. For the first quarter of this year, how much does Stevens owe for federal and state unemployment taxes due to employing Brian?
9. Cathy is single and claims five allowances. She earned \$1,925.57 for the last week. Her prior cumulative earnings were \$34,562.71. What will be her net pay for the current paycheck? What is Cathy's effective tax rate?
10. Don is married and claims two allowances. He earned \$2,688.42 during this month, and his prior cumulative earnings were \$5,277.83. What is the cost to Don's employer for having Don on the payroll this month? Use a SUTA rate of 4.28% on the first \$14,000.

Withholding Tax Tables: 2017 Federal and 2018 State (Kansas)

for the textbook *Business Math: Using Percents*, by Steven J. Wilson

Federal Allowance Values - 2017

Payroll Period	One Withholding Allowance
Weekly	\$ 77.90
Biweekly . . .	155.80
Semimonthly . .	168.80
Monthly	337.50
Annually	4,050.00

State Allowance Values - 2018

Payroll Period	One Withholding Allowance
Weekly	\$ 43.27
Biweekly . . .	86.54
Semimonthly . .	93.75
Monthly	187.50
Annually	2,250.00

**Tables for Percentage Method of Federal Withholding
(For Wages Paid in 2017)**

TABLE 1 – WEEKLY Payroll Period					
(a) SINGLE person (including head of household)– If the amount of wages (after subtracting withholding allowances) is:			(b) MARRIED person (including head of household)– If the amount of wages (after subtracting withholding allowances) is:		
The amount of income tax to withhold is:			The amount of income tax to withhold is:		
Not over \$44 \$0			Not over \$166 \$0		
Over–	But not over	of excess over–	Over–	But not over	of excess over–
\$44	–\$224 . . .	\$0.00 plus 10% –\$44	\$166	–\$525 . . .	\$0.00 plus 10% –\$166
\$224	–\$774 . . .	\$18.00 plus 15% –\$224	\$525	–\$1,626 . . .	\$35.90 plus 15% –\$525
\$774	–\$1,812 . . .	\$100.50 plus 25% –\$774	\$1,626	–\$3,111 . . .	\$201.05 plus 25% –\$1,626
\$1,812	–\$3,730 . . .	\$360.00 plus 28% –\$1,812	\$3,111	–\$4,654 . . .	\$572.30 plus 28% –\$3,111
\$3,730	–\$8,058 . . .	\$897.04 plus 33% –\$3,730	\$4,654	–\$8,180 . . .	\$1,004.34 plus 33% –\$4,654
\$8,058	–\$8,090 . . .	\$2,325.28 plus 35% –\$8,058	\$8,180	–\$9,218 . . .	\$2,167.92 plus 35% –\$8,180
\$8,090	. . . . .	\$2,336.48 plus 39.6% –\$8,090	\$9,218	. . . . .	\$2,531.22 plus 39.6% –\$9,218

TABLE 2 – BIWEEKLY Payroll Period					
(a) SINGLE person (including head of household)– If the amount of wages (after subtracting withholding allowances) is:			(b) MARRIED person (including head of household)– If the amount of wages (after subtracting withholding allowances) is:		
The amount of income tax to withhold is:			The amount of income tax to withhold is:		
Not over \$88 \$0			Not over \$333 \$0		
Over–	But not over	of excess over–	Over–	But not over	of excess over–
\$88	–\$447 . . .	\$0.00 plus 10% –\$88	\$333	–\$1,050 . . .	\$0.00 plus 10% –\$333
\$447	–\$1,548 . . .	\$35.90 plus 15% –\$447	\$1,050	–\$3,252 . . .	\$71.70 plus 15% –\$1,050
\$1,548	–\$3,623 . . .	\$201.05 plus 25% –\$1,548	\$3,252	–\$6,221 . . .	\$402.00 plus 25% –\$3,252
\$3,623	–\$7,460 . . .	\$719.80 plus 28% –\$3,623	\$6,221	–\$9,308 . . .	\$1,144.25 plus 28% –\$6,221
\$7,460	–\$16,115 . . .	\$1,794.16 plus 33% –\$7,460	\$9,308	–\$16,360 . . .	\$2,008.61 plus 33% –\$9,308
\$16,115	–\$16,181 . . .	\$4,650.31 plus 35% –\$16,115	\$16,360	–\$18,437 . . .	\$4,335.77 plus 35% –\$16,360
\$16,181	. . . . .	\$4,673.41 plus 39.6% –\$16,181	\$18,437	. . . . .	\$5,062.72 plus 39.6% –\$18,437

TABLE 3 – SEMIMONTHLY Payroll Period					
(a) SINGLE person (including head of household)– If the amount of wages (after subtracting withholding allowances) is:			(b) MARRIED person (including head of household)– If the amount of wages (after subtracting withholding allowances) is:		
The amount of income tax to withhold is:			The amount of income tax to withhold is:		
Not over \$96 \$0			Not over \$360 \$0		
Over–	But not over	of excess over–	Over–	But not over	of excess over–
\$96	–\$484 . . .	\$0.00 plus 10% –\$96	\$360	–\$1,138 . . .	\$0.00 plus 10% –\$360
\$484	–\$1,677 . . .	\$38.80 plus 15% –\$484	\$1,138	–\$3,523 . . .	\$77.80 plus 15% –\$1,138
\$1,677	–\$3,925 . . .	\$217.75 plus 25% –\$1,677	\$3,523	–\$6,740 . . .	\$435.55 plus 25% –\$3,523
\$3,925	–\$8,081 . . .	\$779.75 plus 28% –\$3,925	\$6,740	–\$10,083 . . .	\$1,239.80 plus 28% –\$6,740
\$8,081	–\$17,458 . . .	\$1,943.43 plus 33% –\$8,081	\$10,083	–\$17,723 . . .	\$2,175.84 plus 33% –\$10,083
\$17,458	–\$17,529 . . .	\$5,037.84 plus 35% –\$17,458	\$17,723	–\$19,973 . . .	\$4,697.04 plus 35% –\$17,723
\$17,529	. . . . .	\$5,062.69 plus 39.6% –\$17,529	\$19,973	. . . . .	\$5,484.54 plus 39.6% –\$19,973

TABLE 4 – MONTHLY Payroll Period					
(a) SINGLE person (including head of household)– If the amount of wages (after subtracting withholding allowances) is:			(b) MARRIED person (including head of household)– If the amount of wages (after subtracting withholding allowances) is:		
The amount of income tax to withhold is:			The amount of income tax to withhold is:		
Not over \$192 \$0			Not over \$721 \$0		
Over–	But not over	of excess over–	Over–	But not over	of excess over–
\$192	–\$969 . . .	\$0.00 plus 10% –\$192	\$721	–\$2,275 . . .	\$0.00 plus 10% –\$721
\$969	–\$3,354 . . .	\$77.70 plus 15% –\$969	\$2,275	–\$7,046 . . .	\$155.40 plus 15% –\$2,275
\$3,354	–\$7,850 . . .	\$435.45 plus 25% –\$3,354	\$7,046	–\$13,479 . . .	\$871.05 plus 25% –\$7,046
\$7,850	–\$16,163 . . .	\$1,559.45 plus 28% –\$7,850	\$13,479	–\$20,167 . . .	\$2,479.30 plus 28% –\$13,479
\$16,163	–\$34,917 . . .	\$3,887.09 plus 33% –\$16,163	\$20,167	–\$35,446 . . .	\$4,351.94 plus 33% –\$20,167
\$34,917	–\$35,058 . . .	\$10,075.91 plus 35% –\$34,917	\$35,446	–\$39,946 . . .	\$9,394.01 plus 35% –\$35,446
\$35,058	. . . . .	\$10,125.26 plus 39.6% –\$35,058	\$39,946	. . . . .	\$10,969.01 plus 39.6% –\$39,946

**Tables for Percentage Method of State Withholding
(For Wages Paid in 2018)**

TABLE 1 – WEEKLY Payroll Period							
(a) SINGLE person (including head of household)– If the amount of wages (after subtracting withholding allowances) is: The amount of income tax to withhold is: Not over \$58 \$0				(b) MARRIED person– If the amount of wages (after subtracting withholding allowances) is: The amount of income tax to withhold is: Not over \$144 \$0			
Over–	But not over		of excess over–	Over–	But not over		of excess over–
\$58	–\$346 . .	\$0.00 plus 3.1%	–\$58	\$144	–\$721 . .	\$0.00 plus 3.1%	–\$144
\$346	–\$635 . .	\$8.94 plus 5.25%	–\$346	\$721	–\$1,298 . .	\$17.88 plus 5.25%	–\$721
\$635	. . . . .	\$24.09 plus 5.7%	–\$635	\$1,298	. . . . .	\$48.17 plus 5.7%	–\$1,298

TABLE 2 – BIWEEKLY Payroll Period							
(a) SINGLE person (including head of household)– If the amount of wages (after subtracting withholding allowances) is: The amount of income tax to withhold is: Not over \$115 \$0				(b) MARRIED person– If the amount of wages (after subtracting withholding allowances) is: The amount of income tax to withhold is: Not over \$288 \$0			
Over–	But not over		of excess over–	Over–	But not over		of excess over–
\$115	–\$692 . .	\$0.00 plus 3.1%	–\$115	\$288	–\$1,442 . .	\$0.00 plus 3.1%	–\$288
\$692	–\$1,269 . .	\$17.88 plus 5.25%	–\$692	\$1,442	–\$2,596 . .	\$35.77 plus 5.25%	–\$1,442
\$1,269	. . . . .	\$48.17 plus 5.7%	–\$1,269	\$2,596	. . . . .	\$96.35 plus 5.7%	–\$2,596

TABLE 3 – SEMIMONTHLY Payroll Period							
(a) SINGLE person (including head of household)– If the amount of wages (after subtracting withholding allowances) is: The amount of income tax to withhold is: Not over \$125 \$0				(b) MARRIED person– If the amount of wages (after subtracting withholding allowances) is: The amount of income tax to withhold is: Not over \$313 \$0			
Over–	But not over		of excess over–	Over–	But not over		of excess over–
\$125	–\$750 . .	\$0.00 plus 3.1%	–\$125	\$313	–\$1,563 . .	\$0.00 plus 3.1%	–\$313
\$750	–\$1,375 . .	\$19.38 plus 5.25%	–\$750	\$1,563	–\$2,813 . .	\$38.75 plus 5.25%	–\$1,563
\$1,375	. . . . .	\$52.19 plus 5.7%	–\$1,375	\$2,813	. . . . .	\$104.38 plus 5.7%	–\$2,813

TABLE 4 – MONTHLY Payroll Period							
(a) SINGLE person (including head of household)– If the amount of wages (after subtracting withholding allowances) is: The amount of income tax to withhold is: Not over \$250 \$0				(b) MARRIED person– If the amount of wages (after subtracting withholding allowances) is: The amount of income tax to withhold is: Not over \$625 \$0			
Over–	But not over		of excess over–	Over–	But not over		of excess over–
\$250	–\$1,500 . .	\$0.00 plus 3.1%	–\$250	\$625	–\$3,125 . .	\$0.00 plus 3.1%	–\$625
\$1,500	–\$2,750 . .	\$38.75 plus 5.25%	–\$1,500	\$3,125	–\$5,625 . .	\$77.50 plus 5.25%	–\$3,125
\$2,750	. . . . .	\$104.38 plus 5.7%	–\$2,750	\$5,625	. . . . .	\$208.75 plus 5.7%	–\$5,625

Answers to Selected Exercises

Exercises 3.3

1.	\$22.22, \$5.20	13.	\$0.24, \$160.29	25.	\$107.94, \$38.50
3.	\$75.96, \$17.77	15.	\$0, \$7.69	27.	\$163.49, \$47.24
5.	\$0, \$36.74	17.	\$98.52, \$23.04	29.	\$2.74, \$46.54
7.	\$81.46, \$28.77	19.	\$129.89, \$30.38	31.	\$0, \$168.10
9.	\$81.26, \$22.31	21.	\$57.91, \$19.36	33.	\$8.60, \$156.20
11.	\$77.27, \$18.07	23.	\$112.33		

Exercises 3.4

1.	\$6.65, \$18.99	9.	\$128.34, \$45.92	15.	\$31.90, \$17.01
3.	\$84.62, \$25.39	11.	\$661.58, \$198.91	17.	\$48.33, \$36.56
5.	\$91.62, \$34.56	13.	\$1,704.47, \$422.81	19.	\$122.59, \$42.63
7.	\$1,310.34, \$338.28				

Exercises 3.5

1a.	\$1,435.14	1d.	74.60%	3c.	\$1,453.28
1b.	15.58%	3a.	\$1,035.94	3d.	71.28%
1c.	\$1,923.72	3b.	23.26%		

Exercises – Chapter 3 Review

1.	\$596.31	5.	\$126.70, \$48.99	8.	\$29.34, \$130.07
2.	\$409.33	6.	\$79.02, \$22.72	9.	\$1,401.92, 27.19%
3.	\$2,439.70	7.	\$2,745.12	10.	\$3,019.47
4.	\$140				