Chapter 1

base period	A fixed period of time that most states use in an unemployment insurance formula to determine weekly benefits.
benefits	Additional compensation from an employer; benefits can include health and dental insurance, child care, retirement, and travel expenses.
biweekly	Every two weeks.
childcare leave	An employee benefit that allows employees paid time off to care for sick children or newborns.
commission	A method of payment where an employee receives a percentage of the amount of sales produced by that employee.
direct deposit	Payroll or other types of checks that are directly and electronically deposited into a bank account.
discount	The amount that a charge, cost, or fee is lowered.
double-time pay	An overtime rate that is two times the hourly rate.
employee benefits	Value-added options that an employer may choose to offer employees; typically, benefits are in the forms of insurance (health, life, and disability), paid vacation time, paid holiday time, retirement plans, stock ownership plans, and childcare leave.
employment agency	A business that has lists of job openings and charges a fee to find jobs for people.
family health care	A type of health insurance that covers all members of the immediate family for health care bills to the extent outlines in the health care coverage plan.
Federal Insurance Contributions Act (FICA)	The federal act that established Social Security insurance.
fee paid	When the employer, instead of the employee, pays the fee to an employment agency.
FICA tax	Social Security and Medicare taxes both fall in this category; the money that an employee and employer contribute to Social Security and Medicare is used to pay current benefits to others.
Form W-4	A form that is filled out by a new employee that gives directions

Employee's Withholding Allowance Certificate	to the government on how much money in taxes to deduct from that employee's pay.
gross pay	The total pay, which is the sum of an employee's hourly pay and overtime pay.
hourly rate	A set amount that an employee is paid for each hour of work.
individual health care	A type of health insurance that covers only the individual to the extent outlined in the health care coverage plan.
insurance	A value-added benefit that employers may offer to employees, such as policies that cover medical, dental, life, and disability. Also see specific of type of insurances, i.e. automobile, car rental, collision, comprehensive, decreasing term, disability, emergency road service, group term life, homeowner's, increasing term, level term, no-fault, Old-age, Survivors, and Disability, term-life, unemployment, universal life, variable life, whole life
maximum taxable income	The maximum income on which a person must pay Social Security tax in a given year.
Medicare tax	The amount of Medicare tax an employee pays is a set percentage of their entire income with no maximum amounts; the amount paid is split between the employee and the employer.
minimum wage	The hourly rate that federal law allows as the lowest hourly rate to be paid to an employee in the United States.
monthly	Twelve times a year.
overtime hourly rate	The hourly wage an employee receives for any overtime hours.
overtime hours	The extra hours an employee works beyond their regular hours.
paid holiday time	Paid time off for holidays that an employer may offer to employees as an employee benefit.
paid vacation time	Paid time off that an employer may offer to employees as an employee benefit.
pension	A type of retirement plan where an employee receives compensation from an employer after retirement.

piecework rate	The set amount of money that a worker receives for each item individual produces.
pieceworker	A type of worker who is paid for each item the employee produces.
regular hours	The set number of hours that an employee is expected to work.
resume	A short accounting of a job-seeker's education and qualifications for employment.
retirement plans	A means that employers may offer a way to save for retirement; these types of plan may include pensions or 410(K)s.
royalty	Money that employees or others receive based on sales, for example an author or musician.
semimonthly	Two times a month.
Social Security	An insurance program is available through the United States government that provides income to people who retire, become disabled, or who receive survivors benefits.
Social Security number	A unique, nine-digit number that identifies a resident of the United States; this number is used to keep track of social security taxes that are paid.
Social Security tax	The amount of Social Security a worker pays depends on the Social Security percentage and the maximum taxable income for that year; the amount is split between the employee and the employer.
stock ownership plans	A plan that allows employees to buy or receive company stock; offered as an employee benefit.
time-and-a-half overtime	The hourly rate an employee usually gets paid for overtime hours.
unemployment insurance	A government program that offers benefits to eligible employees who, through no fault of their own, have become unemployed.
weekly	Once per week.
worker's compensation	Assistance to employees who are injured while working at their job. A program that is governed by state laws.

1.1 Look For Employment Assignment

Directions: Do all work on a separate paper and circle/highlight your answer.

1. Danny just answered a help-wanted ad. The ad states that the job pays $27 K annually. What would Danny's monthly salary be if he gets this job?

2. Beck is looking for a new job as an account executive. She responds to a classified ad for a position that pays $34.5 K. What would Becky's weekly salary be to the nearest cent , if she gets this job?

3. Melanie got a new job through the Jones Employment Agency. The job pays $32, 400 per year, and the angency fee is equal to 45% of one months pay. How much must Melanie pay the agency?

4. Enid got a job through an employment agency that is equal to 40% of the first five weeks' pay. The job pays $315 per week. How much does Enid have to pay the employment agency?

5. The
Rockville Emplyment Agency just placed Howard Jacobson at a job as a junior pharmacist. The job pays $51.2 K. The agency fee is equal to 40% of the first three weeks pay.
   a. What is Howard's weekly pay?
   b. What will Howard earn during the first three weeks?
   c. How much must Howard pay the employment agency to the nearest dollar?

6. Pat earns $575 per week at her new job. Express her annual salary using the K abbreviation found in classified ads.

7. Mike is a veterinarian. He is placing a 9 – line classified ad for an assistant. The following piecewise function gives the price of an x – line ad.

   a. Find the difference between the cost of a 2-line ad and the cost of a 3-line ad.
   b. Find the cost of a 10-line ad.
   c. Find the cost of an 11-line ad.
   d. Can you find the difference between the cost of a 15-line ad and a 17-line ad, without finding out the cost of each ad first? Explain.

8. Cathy is looking for a job as a bookkeeper. One classified ad lists the job in a stereo store that pays $34.6 K. Another job, in a clothing store has a weekly salary of $620.
   a. Which job is the higher-paying job?
   b. What is the differency in the weekly salaries of these two jobs? Round to the nearest dollar.

1.2 Pay Periods and Hourly Rates Assignment

1. Yoko is paid semimonthly. How many fewer paychecks does she receive in a year compared to someone who is paid weekly?

2. Sean is paid biweekly. His annual salary is $42,500. What is his biweekly salary to the nearest cent?

3. Cynthia's semimonthly salary is $1,371.50. What is her annual salary?

4. Baseball player Alex Rodriquez earned $27,708,525 in 2007. He played in 158 games. What was his salary per game to the nearest thousand?

5. Ceil gets paid biweekly. Her biweekly salary is $1,763.28. What is her annual salary?

6. John's weekly salary is $428.25. His employer is changing the pay period to semimonthly.
   a. What is John's annual salary?
   b. What will John's semimonthly salary be to the nearest cent?

7. Last year Beth's annual salary was $38,350. This year she received a promotion and now earns $46,462 annually. She is paid biweekly.
   a. What was her biweekly salary last year?
   b. What is Beth's biweekly salary this year?

   c. On a biweekly basis, how much more does Beth earn as a result of her promotion?

8. Hector works in a gas station and earns $8.60 per hour. Las week he worked 29 hours. What was his gross pay?

9. Eddie works at Beep-N-Kleen car wash. He earns $8.40 per hour. Las week he work x hours at this rate. Express his gross pay algebraically.

10. Thom earns $12.40 per hour at the Yankee Bowling Alley. He regularly works 40 hours per week. He is paid time and a half for each our of overtime work. Last week he worked 42 hours. What was his gross pay for the week?

11. Jim worked 40 regular hours last week, plus 8 overtime hours at the time and a half rate. His gross pay was $1,248.
    a. What was his hourly rate?
    b. What was his hourly overtime rate?

1.3 Commissions, Royalties, and Piecework Pay Assignment

1. Rock musician Donny West is paid 15% on his CD sales and tour video sales. Last year, he sold one million CDs and 550,000 videos. The CDs were sold to music stores for $5 and the videos for $6 each.
    a. What was the total amount of CD sales?
    b. What was the total amount of video sales?
    c. What was the combined total of CD and video sales?
    d. How much did Donny West receive in royalties last year?

2. Joan sells new cars at a local dealership. She receives a 25% commission on the profit each car is sold for. Last month she sold 9 cars, for a total of $8,879 dealer profit. How much did she earn in commission?

3. Liz works at Heedle's Computer Outlet. She receives a weekly salary of $200 plus 3% commission on her sales. Last week, she sold $29,700 on computer equipment. How much did Liz earn last week?

4. Professional baseball player Rusty Raspberry earns $1,715,000 a year playing baseball. Last year, a biography that he had written sold 300,000 copies at a price of $24 each. Raspberry received 10% in royalties on the book sales. What was his total salary last year from the book and his baseball career?

5. Alanna is a stockbroker. She receives a commission based on the value of the trades she makes.
    a. If Alanna earns $50 for sales of $1000, what is percent of commission?
    b. If she earns x dollars for sales of y dollars, express her percent of commission algebraically.

6. Salespersons at Kings Park Auto Giant are paid a commission, c(p), based on the profit, p. The following piecewise function gives the commission rules.

    a. If the profit is $1,500, what is the percent commission rate?
    b. If the profit is $900, what is the percent commission rate?
    c. What is the commission on a car sold for a $970 profit?
    d. Kings Park Auto Giant purchases a car for $32,090 and sells it for $33,200. What commission is paid to the salesperson?

1.4 Employee Benefits Assignment

1. Roberto's employer offers a sliding paid vacation. When he started work, he was given three paid days of vacation. For each six month period he stays at the job, his vacation is increased by two days.
   a. Let x represent the number of 6-month periods worked and y represent the total number of paid vacation days. Write an equation that models the relationship between these two variables.
   b. How much vacation time will he have earned after working 4.4 years?

2. When Lou started his current job, his employer told him that he would receive two vacation days for each full year he worked. Let x represent the numbers of years he has worked for the company and y represent the number of paid vacation days he earned.
   a. Write an equation that models the relationship between the two variables.
   b. How long will it take him to earn 18 paid vacation days?

3. Ruth contributes n18% of the total cost of her individual health care. This is a $67.50 deduction from each of her biweekly paychecks. What is the total value of her individual coverage for the year?

4. At Richardson Manufacturing Company, there are two factors that determine the cost of health care. IF an employee makes less than $55,000 per year, he pays $40 per month for individual coverage and $85 per month for family coverage. If an employee makes at least $55,000 per year, individual coverage is $70 per month and family coverage is $165 per month.
   a. Arielle is an office assistant at Richardson. She makes $47,700 per year. She has individual health care. Her yearly contribution is 5% of the total cost. How much does her employer contribute?
   b. Catherine is a department manager at Richardson. Her annual salary is $68,300. She has family care. Her employer contributes $935 per month towards her total coverage cost. What percent does Catherine contribute toward the total coverage?

5. Eddie is a plant manager at North Salem Construction Company. He has been employed there for 20 years and will be retiring at the end of this year. His pension is calculated on the average of his last four years' salaries. In those years, he earned $82,000, $96,000, $105,000, and $109,000. His employer will give him 1.2% of that average for each year he worked. Calculate Eddie's pension.

6. As part of their employee benefits, all workers at Middletown Electronics receive a pension that is calculated by multiplying the number of years worked times 1.65% of the average of their three highest years' salary. Maureen has worked for Middletown for 27 years and is retiring. Her highest salaries are $97,000, $97,800, and $98,198. Calculate Maureen's pension.

1.5 Social Security and Medicare Assignment

Financial Math

YEAR	SOCIAL SECURTY (%)	MAXIMIM TAXABLE INCOME ($)	MAXIMUM YOU COULD PAY INTO SOCIAL SECURITY
1978	6.05%	17,700	a.
1980	6.13%	25,900	b.
1982	6.7 %	32,400	c.
1984	6.7%	37,800	d.
1986	7.15%	42,000	e.
1988	7.51%	45,000	f.
1990	7.65%	51,300	g.

1. The table above gives a historical look at Social Security tax before there was a separate Medicare tax. Find the maximum you could pay into Social Security for each year.
2. In 1990, Jerry's gross pay was $78,000.
    a. What was his monthly gross pay?
    b. In what month did Jerry hit the maximum taxable Social Security income?
    c. How much Social Security tax did Jerry pay in January?
    d. How much Social Security tax did Jerry pay in December?
3. In 1978, Dawn Earned $48,000.
    a. What was her monthly gross pay?
    b. In what month did Dawn reach the maximum taxable Social Secutyr income?
    c. How much Social Security tax did Dawn pay in February?
    d. How much Social Security tax did Dawn pay in May?
    e. How much Social Security tax did Dawn pay in November?
4. An All-star baseball player earning $25,000,000 per year plays 162 games per year. If you divide the salary by the number of games, does that baseball player reach this year's maximum taxable income in the first game of the year?

Unit 1 Review

Name:_____

Date:_____

Period:_____

1. Carol owns Virgil's Electrical Corporation. She needs an electrician and is placing a nine line classified ad. The cost of an ad that is x lines long is given by the following piecewise function. Find the cost of a nine-line ad.

$$c(x) = \begin{cases} 28 & \text{when } x \le 3 \\ 28+4(x-3) & \text{when } x > 3 \end{cases}$$

2. Danielle needs 550 copies of her resume printed. Dakota Printing charges $24.50 for the first 250 copies and $12.50 for every 100 additional copies.

    a. How much will 550 copies cost, including a sales tax of 9 ½ %? Round to the nearest cent.

    b. If the number of sets of 100 resumes is represented by r, express the cost of the resumes, $c(s)$, algebraically as a piecewise function.

3. Mr. Carter took a job through an employment agency. The job pays $62K per year. He must pay a fee to the employment agency. The fee is 38% of his first three weeks' pay. How much money must Mr. Carter pay the agency, to the nearest cent?

4. Chris is a tanner. He is placing a classified ad for an assistant for his store. The following piecewise function gives the price of an x-line ad.

$$c(x) = \begin{cases} 35 & \text{when } x \le 5 \\ 25+7(x-5) & \text{when } x > 5 \end{cases}$$

    a. What is the cost of the first five lines if Chris purchases five lines?

    b. What is the cost for six lines if Chris purchases six lines?

    c. How much less is a six-line ad compared to a five-line ad?

Unit 1 Review

5. Mrs. Barker works 40 hours per week regularly, at a rate of $36.80 per hour. When she works overtime, her rate is time and a half of her regular hourly rate. What is Mrs. Barker's hourly overtime rate?

6. Mr. Jones earns $26.50 per hour. His regular hours are 40 hours per week, and he receives time-and-a-half overtime. Find his total pay for a week in which he works 45 hours.

7. Last year Debby's annual salary was s dollars and was paid semimonthly. This year she received a raise of i dollars per year. She is now paid biweekly.

    a. Express her semimonthly salary last year algebraically.

    b. Express her biweekly salary this year algebraically.

    c. How many more checks does Debby now receive each year when she was paid biweekly, as compared to the old semimonthly arrangement?

8. Mr. Franks earns $36 per hour. He regularly works 40 hours per week. If he works 22 overtime hours (at time-and-a-half), would his overtime pay exceed his regular gross pay? Explain.

9. Last year, Mrs. Larson's annual salary was $67,438. This year she received a raise and now earns $75,530 annually. She is paid biweekly.

    a. What was her biweekly salary last year? Round to the nearest cent.

    b. What is Mrs. Larson's biweekly salary this year? Round to the nearest cent.

    c. On a biweekly basis, how much more does Mrs. Larson earn as a result of her raise to the nearest cent, and as a percent increase?

10. Rap singer and writer Craze-K Loop is paid 8.5% on his CD sales and music downloads. Last year, he sold 1.86 million CDs and 2.1 million music downloads. The CDs were sold to music stores for $6.5 each, and the music downloads were $1.19 each.

    a. What was the total revenue received for CD sales?

    b. What was the total revenue received for downloads?

    c. How much did Craze-K receive in royalties last year?

11. Mr. Pambruccian wrote a textbook for college nursing students. He receives a 4% royalty based on the total sales of the book. The book sells for $45.99, and 24,576 copies were sold last year. How much did Mr. Pambruccian receive in royalty payments for last year, to the nearest cent?

12. Bell Road Motors pays commission to its car sales staff. They are paid a percent of the profit the dealership makes on the car, not on the selling price of the car. If the profit is under $600, the commission rate is 13%. If the profit is at least $600 and less than or equal to $1,700, the commission rate is 19% of the profit. If the profit is above $1,700, the rate is 22% of the profit. If p represents the profit, express the commission $c(p)$ algebraically as a split function.

13. Ms. Watson works at a clothing line warehouse. She receives a salary of $8.90 per hour and piecework pay of .29 cents per unit produced. Last week she worked 40 hours and produced 953 units.

    a. What was her piecework pay? What was her total hourly pay for the week? What was her total pay for the week?

    b. If her boss offered to pay her a straight $13 per hour and no piecework pay for the week, would she earn more or less than under the piecework pay system?

    c. What would her total weekly salary have been if she produced 0 units?

14. When Ethan started at his current job, his employer gave him three days of paid vacation time with a promise of six additional paid vacation days for each two-year period he remains with the company to a maximum of six work weeks of paid vacation time.

   a. Let x represent the number of years he has worked for this employer and y represent the number of paid vacation days he has earned. Write an equation that models the relationship of these variables.

   b. It has been eight years since Ethan began working for this employer. How many paid vacation days has he earned?

   c. When will Ethan reach the maximum number of paid vacation days allowable?

15. Nancy's employee benefits include family health care coverage. She contributes 23% of the cost. Martha gets paid semimonthly and $156.00 is taken out of each paycheck for family health care coverage. How much does her employer contribute annually for the family coverage?

16. In Barry's state, the weekly unemployment compensation is 58% of the 26-week average for the two highest-salaried quarters. A quarter is three consecutive months. For July, August, and September, Ben earned a total of $17,500. In October, November, and December, he earned a total of $18,300. Determine Barry's weekly unemployment compensation.

17. Christian earned a total of r dollars last year. The government took out 7.1% for Social Security and 1.45% for Medicare. Write an algebraic expression that represents what she paid to Social Security and Medicare combined.

Unit 1 Review

18. In 2009, Dr. Collin's gross pay was $341,551.90.

    a. What was his monthly gross pay?

    b. In what month did he hit the maximum taxable Social Security income?

    c. How much Social Security tax did she pay in March? Round to the nearest cent.

    d. How much Social Security tax did she pay in August? Round to the nearest cent.
    e. How much Social Security tax did Dr. Collins pay in April? Round to the nearest dollar.

Year	Social Security Percent	Social Security Maximum Taxable Income	Medicare Percent	Income Subject to Medicare Tax
2000	6.2%	76,200	1.45%	All income
2001	6.2%	80,400	1.45%	All income
2002	6.2%	84,900	1.45%	All income
2003	6.2%	87,900	1.45%	All income
2004	6.2%	87,900	1.45%	All income
2005	6.2%	90,000	1.45%	All income
2006	6.2%	94,200	1.45%	All income
2007	6.2%	97,500	1.45%	All income
2008	6.2%	102,000	1.45%	All income
2009	6.2%	106,800	1.45%	All income
2010	6.2%	106,800	1.45%	All income