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Solving Problems “by the Hundreds” A Study of Percentage and Its Applications in the Study of Consumer Related Problems

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Introduction

Percentage is a mathematical concept that appears very frequently in everyday life. You read that a merchant is offering a twenty percent discount on a selected group of items. The manufacturer of an article of clothing states that the material is sixtyfive percent dacron and thirty five percent polyester. Savings banks pay a five and one half percent interest rate annually on regular savings accounts. The state of Connecticut has raised the rate of its sales tax to seven and one half percent.

These and similar items which appear daily in newspapers indicate the importance of understanding the concept of percentage. In order to live more insightfully, wisely and enjoyably every citizen should be able to perform simple mathematical calculations which enable him to compute discount and sales tax on purchases, gratuities for services performed, interest on savings accounts and loans, deductions from his weekly pay and other consumer related problems which he encounters from day to day.

Although percentage has been taught through the years in a variety of ways, many people do not understand the concept and do not know how to use it. When specific problems are assigned to be solved in a class, often students remark, “I do not know how to begin. What shall I do first? Shall I multiply or shall I divide? Shall I use the formula B x R = P, or P Ö B, or PÖ B= R?”

In this unit of study we will try to improve the students’ understanding of percentage by providing them with a consistent and meaningful method of solution for general problems. After reviewing the fundamental arithmetic skills involved in percentage, the students will apply them to significant problems faced by the consumer in his daily affairs.

There are several basic objectives for this unit of study. Upon completion of it, the student will be able to:

— understand the meaning of percentage. change any percent to its equivalent decimal or fractional form. find a percentage of a given number.

— find what rate of percent one number is of another.

— find a number when a percentage of it is given.

— find the rate of percent greater or smaller one number is than another.

— solve consumer related problems by using percentage.

The material developed here may be used at several levels of instruction for the following purposes: (1) to introduce the concept of percentage and its applications to middle school students who have not been exposed to the topic previously, (2) to improve the skills of high school students who have not mastered the techniques adequately, (3) to serve as remedial work in adult basic education classes.

The Meaning of Percent

Percent is a term derived from two Latin words “per centum” which mean by the hundred. The symbol for percent is i. Observing this symbol carefully, one notices that it contains the numerals which represent the number one hundred. Percent means hundredths. One hundred hundredths equal one whole item. If a percent is less than 100% it is equivalent to a fraction less than one. If a percent is more than 100% it is equivalent to a fraction greater than one.

Percents, Common Fractions, a Decimals

It is important to be able to convert percentages to equivalent fractions and decimals. To change a percent to a common fraction, place it in the numerator of a fraction whose denominator is one hundred and remove the percent sign. Express the resulting fraction in simplest form, For example:

7% = 7/100, 6 1/3% = 6 1/3 Ö 100 = 19/3 x 1/100 = 19/300,

82% = 82/100 = 41/50, 4.8% = 4.8/100 = 48/1000 = 6/125.

The fraction 13/100 means 13 divided by 100. Every time a number is divided by 100 the decimal point moves two places to the left. To change a percent to a decimal, divide the given number by 100, that is, move the decimal point two places to the left and remove the percent sign.

57$ = .57 125% = 1.25 .39% = .0039 87.5% =. 875

To convert a fraction or a decimal to a percent, multiply the fraction or decimal by one hundred and place the percent sign with the result. For example:

1/4 = 1/4 x 100 = 25% .25 = 25 100= 25%

For practice complete the following table:

Percent	Decimal	Fraction	Percent	Decimal	Fraction
45%			92%		
	24			.062	
		3/8			15/16
5 1/4%			3.8%		
	4.4			.70	
		5/12			6/7

Percentage Problems

Problems involving percent are called percentage problems. Three of the most common types of percentage problems are (1) finding a percent of a given number, (2) finding what percent one number is of another, and (3) finding a number when a percent of it is given.

Any of these percentage problems may be solved in the following manner. Read the problem carefully to determine what is being asked. Represent the number that you wish to find by the letter N, and change the percent to a fraction. Let the word "of" denote multiplication. Translate the problem into a mathematical sentence, and solve the resulting equation to find the desired number N.

Example 1:	Find 6% of 80.
Solution:	Let N represent the required number.
	Change 6% to 6/100.
	Let the word "of" denote multiplication.
	N =6/100 x 80/1
	N= 480/100
	N= 4.80
	6% of 80 = 4.80
Example 2:	16 is what percent of 48?
Solution:	Let N represent the required percent.
	Change N% to N/100.
	Let the word "of" denote multiplication,
	16/1= N/100 x 48/1
	16/1= 48N/100
	48N = 1600
	N = 33 1/3
	16 is 33 1/3% of 48.
Example 3:	12 is 75% of what number?
Solution:	Let N represent the required number.
	Change 75% to 75/100.
	Let the word "of" denote multiplication.
	12/1= 75/100 x N/1
	12/1 75N/100
	75N =1200
	N =16
	12 is 75% of 16.

Another common type of percentage problem is to find what percent greater or smaller one number is than another. To solve a problem ofthis type, use the following procedure. (1) Subtract to find the difference between the two numbers. (2) Compare the difference with the original number before it was increased or decreased. Do this by placing the difference in the numerator of a fraction whose denominator is the original number. (3) Multiply the fraction by one hundred to obtain the required rate of percent.

Example 4: What percent greater than 75 is 100?

Solution: 100 75= 25

25/75 1/3

1/3 x 100/1 =100/3 = 33 1/3%

100 is 33 1/3% greater than 75.

Solve the following set of problems.

1. 18% of 750 is ___. 2. 86 is ___% of 129.
3. 9 1/4% of 112 is ___. 4. 45 is 90% of ___.
5. 7 is ___% of 56. 6. 3 is 7.5% of ___.
7. 3.6% of 248 is ___. 8. 15 is ___% of 60.

9. Last month gasoline sold for $1.10 per gallon. This month it is selling for $1.32 per gallon. Find the percent of increase in the price per gallon.
10. There are 180 days in the school year. Mary was present 95% of the total days. How many days was she present?
11. On an arithmetic test John received a grade of 80%. He solved 24 problems correctly. How many problems were there on the test?
12. Mr. Brown receives a weekly salary of $200. He spends $60 per week for food. What percent of his weekly salary does he use for food?
13. Last year City High School had an enrollment of 1800 students. This year the enrollment is 1600 students. What is the percent of decrease in the student population?
14. A number changed from 24 to 36. What was the percent of increase in the number? Later the number changed from 36 to 24. What was the percent of decrease in the number?

Sales Tax and Gratuities

When purchasing items other than food, clothing for children, and prescriptions in the state of Connecticut, one must pay a sales tax in addition to the cost of the item. The sales tax is a seven and one half percent charge applied to the total purchase price of the merchandise. This means that, on taxable items, one must pay an extra seven and one half cents on every dollar spent. The money collected from the sales tax is given to the state. It is used to pay for services provided by the state government.

To compute the amount of sales tax to be added to the purchase price of any item, multiply the rate of percent by the price of the item. The result usually is rounded to the nearest cent. To round any amount of money to the nearest cent, look at the digit to the right of the hundredths place. If this digit is less than five, drop it and keep the cents obtained in the product. If the digit to the right of the hundredths place is five or greater, drop it and add one to the cents obtained in the product.

Example 1:	Round the following to the nearest cent:	
	a) $5.2763	b) $.6419
Solution:	a) $5.2763 = $5.28	b) $.6419= $.64
Example 2:	Find 7.5% of $495.	
Solution:	7.5/ 100 x 495/1 = 3712.5/100 = $37.125 = $37.13	

When a person dines in a restaurant the meal is subject to the sales tax. It is also customary to leave a tip for the waiter in appreciation of the services he has performed. This gratuity is usually fifteen percent of the price of the meal.

Fifteen percent of any amount may be calculated mentally by using the following three steps: (1) Find ten percent of the amount by moving the decimal point one place to the left. (2) Find five percent of the amount by taking one half of the answer in step one. (3) Add the answers in steps one and two.

Example 1:	Calculate 15% of $3.89 mentally.	
Solution:	10% of $3.89 = $.389	
	1/2 of .389 = .1945	
	.389 + .1945 =.39 + .19 = .58	
	15% of $3.89 is $.58.	
Example 2:	Mary bought a purse for $10.95 and a pair of shoes for $18.95. What total amount did she pay if a 7.5% sales tax was added to the price of the items?	
Solution:	$l0.95 + $l8.95 = $29.90	Cost of the items
	7.5/100 x 29.90/1 = 224.25/100 = $2.24 Sales Tax	
	$29.90 + $2.24 = $32.14 Total Paid	
Example 3:	Jim had luncheon downtown last week. He ordered a hamburger at $.95, potatoes at $.65, and a coke at $.50. What total amount did he pay if a 7.5% sales tax and a 15% tip were added to the price of the food?:	
Solution:	.95 + .65 + .50 = $2.10	Cost of the luncheon
	7.5/100 x 2.10 =$.16	Sales Tax
	10% of $2.10 = $.21	
	5% of $2.10 = $.105 = $.11	
	$. 21 + .11 = $.32	Tip
	$2.10 + $.16 + $.32 = $2.58	Total Paid

Solve the following set of problems.

1. Using a 7.5% sales tax, find the amount of tax and the total paid for the following items:

Item	Price	Sales Tax	Total Paid
toothpaste	.69		
greeting card	. 40		

comb	.35
lemonade	.79
soap powder	1.58

2. During November Mrs. English made the following purchases at a department store.

skirt	$14.95	stockings	$1.98
dress	$45,00	dusting powder	$2.75
blouse	$17.00	shoes	$24.00

Find the total amount of the bill including a sales tax of 7.5% on each item.

3. Mrs. Green bought the following items at the Orange Market: 6 lb. roast beef $2.39 lb., 2 lb. coffee $3.29 lb., 3 bottles of soda .39 each (taxable item plus 5¢ deposit on each bottle), 8 bars soap 4 bars for .69 (taxable item), 1 bottle shampoo .99 (taxable item), 10 lb. potatoes $1.19. Find the total amount of the purchase including a 7.5% sales tax on taxable items and deposits on bottles.

4. Fifteen office workers are planning to go out to dinner. Using the menu below select a dinner for each person. Find the total cost of the bill including a 7.5% sales tax and a 15% tip.

MENU

Appetizers

Shrimp Cocktail	$4.55
Alaskan King Crab Legs	$4.55
Iced Cherrystones on half shell	$3.50
Clams Casino	$3.50
Baked Stuffed Clams	$3.50

Entree

Whole Lobster one and onehalf lbs.	$17.34
Lobster Tails	$16.25
Fisherman’s Platter	$12.45
Baked Stuffed Shrimp	$9.95
Shrimp Scampi	$9.95
Baked Stuffed Sole	$9.95
Alaskan King Crab Legs Fra Diavolo	$10.95
Scallops with Lobster Sauce	$9.95
Broiled Swordfish Steak	$9.95

Reef & Beef	$11.95
New York Cut Sirloin Steak	$10.75
Filet Mignon with Stuffed Tomato	$12.95
Prime Rib Au Jus	$9.95
Roast Leg of Spring Lamb	$9.95

The above served with Salad Bar, Baked Potato, Vegetable, Soup and Coffee

Discount

A good way to save money is to shop when merchandise is on sale. After Christmas many stores reduce the prices of toys, furniture, and other household items. In late February and March winter clothing usually is cleared out at lowered prices. Following the fourth of July there are reductions on summer items.

The amount that an article is reduced in price is called a discount. The rate of discount is the rate of percent that is taken off the original price of the article. The original price of an article is known as the list price or marked price, while the amount for which the article sells after the discount has been subtracted is the net price or sale price.

To find the net price of an item which is being sold at a discount, first multiply the rate of discount by the marked price to obtain the discount, then subtract the discount from the marked price to obtain the net price. To find the rate of discount, divide the discount by the list price and multiply the result by one hundred.

Example 1:	Janet bought a coat which usually sells for $98.00 at 25% off. What did she pay for the coat?		
Solution:	25/100 x $98.00 = 1/4 x 98.00 = $24.50	discount	
	$98.00 $24.50 =$73.50		net price
	Janet paid $73.50 for the coat.		
Example 2:	A blouse marked $10.00 was on sale for $6.00.		
		Find the rate of discount.	
Solution:	$10.00 $6.00 = $4.00		
	4/10 x 100/1 = 400/10 = 40%		
	The rate of discount is 40%.		

Sometimes two or more successive discounts are given. In this case we use them one at a time, that is, multiply the first rate of discount by the marked price to find the first discount. Subtract the first discount from the marked price to obtain a reduced amount. Now, multiply the second rate of discount by the reduced amount to calculate the second discount. Subtract the second discount from the reduced amount to obtain the net price. If more than two successive discounts are given, continue in the same way until all discounts have been applied.

Example:	The list price of a lawn mower is $189.95. What is the net price if discounts of 20% and 10% are allowed?
Solution:	20/100 x $189.95/1 = 3799/100 = $37.99
	$189.95 $37.99 = $151.96

10/100 x $151.96/1 = 1519.6/100 = 15.196 = $15.20

$151.96 $15.20 = $136.76

The net price of the lawn mower is $136.76.

Solve the following set of problems.

1. During a post holiday sale, a department store advertised 40% off all merchandise. What was the sale price of a sofa that originally cost $395?
2. A factory outlet offers 20% to 50% reductions on sweaters. If a sweater marked $18 sells for $11.70, what is the rate of discount?
3. During the month of February, a retailer is selling electric typewriters at a 10% discount. On Washington's birthday he is offering an additional 22% off the reduced price. What is the sale price of a typewriter with both discounts if the price was $299.99 before the February sale?
4. John paid $6.31 for a book marked 25% off the regular price. What was the regular price of the book?
5. On Tuesday the five and ten cent store offers a ten percent discount to senior citizens. With the discount what was the price of the following items? 2 spools of thread .33 each, 4 washcloths .59 each, 1 lb. candy $1.29 lb., 2 sheets $2.99 each.
6. One store was offering a 15% discount on all dresses. Another store reduced the prices of all dresses by five dollars. Which was the better buy on a dress marked $25? How much better was it?

Commission

Manufacturers and producers of goods are not always able to sell their own products. It is necessary for them to employ agents to sell the articles for them. The pay received by the agent, or salesman, for work or services performed is called commission. Sometimes the commission is a certain amount for each article sold. Other times it is a percentage of the dollar value of the sales. That rate of percent is called the rate of commission. The total money received by the salesman for his employer is called the gross proceeds. The gross proceeds minus the commission is known as the net proceeds.

Sometimes a salesman receives a graduated commission. This means that the rate of commission increases as the amount of sales increases. For example, the rate of commission may be 8% on all sales up to $10,000 and 10% on all sales over $10,000. In many cases a salesman receives a fixed salary plus a commission.

Example 1:	A salesman who works on a commission basis receives 12% of his sales. How much was his commission on a sale amounting to $265?

Solution: Find 12% of $265.

Let N= the missing number.

Change 12% to 12/100.

Let “of” denote multiplication.

12/100 x 265/1= N

3180/100= N

N = $31.80

The salesman earned $31.80 commission.

Example 2: A salesclerk receives a weekly salary of $120 plus a commission of 5% on all sales above $500 per week. During three weeks her total sales were $1540, $1235, and $1040. What were her total earnings for the three weeks?

Solution:	$120 x 3 = $360	salary for three weeks
	$1540 $500 = $1040	
	$1235 $500 = $ 735	
	$1040 $500 = $ 540	
	$1040 + $735 + $ 540 = $2315	
	5/100 x 2315/1 = 11575/100 = $115.75	commission
	$360.00 + $115.75 = $475.75	total earnings
	Her total earnings were $475.75.	

Example 3: A salesclerk is paid an 8% commission on the first $800 of weekly sales, and a 14% commission on all sales over $800. Last week his sales were $1300. What was his commission?

Solution:	$1300 $800 = $500	sales above $800
	8/100 x 800/1 = 6400/100 = $64	commission
	14/100 x 500/1 = 7000/100 = $70	commission
	$64.00 + $70.00 = $134.00	total commission
	His total commission was $134.	

Solve the following set of problems.

1. A real estate agent receives a commission of 6% of the selling price of a house. If he sells a house for $135,000 what is his commission? What are the net proceeds?

2. Complete the following table.

Selling Price	Rate of Commission	Amount of Commission	Net Proceeds
$87,900	5%		
$500		$ 75	
	6%	$ 84	
	10%		$ 108
325			$ 300
		$500	$1,500

3. A salesman receives a weekly salary of $160 plus a commission of 4% on all sales above $1800. If his sales for four successive weeks were $2180, $1950, $2472, and $2200, find his total earnings from salary and commission for the four weeks.
4. A department store clerk receives 12 1/2% commission on all merchandise sold. Last week she received $52 commission. What were her sales for the week?
5. Mary earned a 4% commission on the first $650 of weekly sales, and a 6% commission on all sales over $650. Last week her total sales were $1165. How much commission did she receive?

Simple Interest

Just as people pay for the use of items belonging to others, they pay for the use of money belonging to someone else. The price paid for the use of money is called interest. Simple interest is the amount paid on a sum of money, borrowed or invested, which remains unchanged for a specific period of time.

The amount of money borrowed or invested is the principal. The rate of interest is the percent of the principal charged for the use of the money. It is expressed as an annual rate, unless stated otherwise. The period of time for which the money is borrowed or invested may be expressed in years, months, or days, however, the unit of time must correspond to the rate. If the rate is given as an annual rate, the time must be expressed in terms of a year, that is, days or months must be converted to a fraction or multiple of a year. To calculate simple interest, multiply the principal by the rate of interest, then multiply that product by the time. The formula for finding simple interest states: Interest = Principal x Rate x Time.

Example 1:	Find the simple interest on $540 at 6% per year for 2 years.
Solution:	Principal = $540 Rate = 6/100 Time 2 years
	Interest = $540/1 x 6/100 x 2/1 = $6480/100
	Interest = $64.80
Example 2:	Find the simple interest on $980 at 12% per year for 10 months.
Solution:	Principal = $980 Rate = 12/100 Time = 10/12 yr.

Interest = $980/1 x 12/100 x 10/12

=980 /1 x 1/10 x 1/1= 980/10 = $98.00

Example 3:	Steve borrowed $1200 at 14% per year simple interest for 8 months. What was the total amount due when he repaid the loan?
Solution:	Principal = $1200 Rate of Interest = 14/100
	Time = 8/12 year
	Interest = Principal x Rate x Time
	Interest = $1200/1 x 14/100 x 8/12 = $112.00
	Amount Due = Principal + Interest
	Amount Due = $1200 + $112 = $1312.

When time is expressed in days, three types of simple interest are commonly used. They are:

1. Ordinary simple interest in which an “interest year” consists of 360 days or twelve months of thirty days each. The number of days used in computing ordinary simple interest is known as approximate time. This method is used frequently to compute interest on installment loan.
2. Banker’s or commercial interest in which an “interest year” consists of 360 days, but the exact number of days in the interest period are used. This method results in a greater return to the lender.
3. Accurate interest in which an “interest year” consists of 365 days, and the exact number of days in the interest period are used. This method is used by the federal government and some banks.

Example 1: Find the approximate time and the exact time from June 12, 1980 to October 24, 1980. Exclude the first day, but include the last day.

Solution:

Month	Approximate Number of Days	Exact Number of Days
June 12 30	18	18
July	30	31
August	30	31
September	30	30
October	24	24
Total	132 days	134 days

Example 2: Find the ordinary, banker’s and accurate interest on $1560 at 15% per year for a loan dated March 21 and due June 6 of the same year.

Solution: Ordinary Interest

Principal = $1560 Rate = 15% Time 75 days

Interest = 1560/1 x 15/100 x 75/360

= 39/1 x 5/4 = 195/4 = $48.75

Ordinary Interest = $48.75

Banker’s Interest

Principal = $1560 Rate = 15% Time = 77 days

Interest = 1560/1 x 15/100 x 77/360

= 13/1 x 77/20= 1001/20 = $50.05

Banker’s Interest =$50.05

Accurate Interest

Principal = $1560 Rate = 15% Time = 77 days

Interest = 1560/1 x 15/100 x 77/365

= 78/1 x 3/1 x 77/365

= 18018/365 =$49.364 = $49.36

Accurate Interest = $49.36

Example 3: The banker's simple interest paid on a sum of money invested at 8% per year for 90 days was $18. How much money was invested?

Solution: Principal = N Rate 8% Time =90/360 year Principal x Rate x Time = Interest

N/1 x 8/100 x 90/360 = $18

720N/36000= 18/1

N/50 =18/1

N =$900

The amount invested was $900.

Solve the following set of problems.

1. Find the approximate time and exact time for the following: a) March 17, 1980 to July 8, 1980 b) September 3, 1979 to February 26, 1980.
2. Jack borrowed $5,000 to buy a car. He repaid the loan at the end of four years. The ordinary simple interest on $5,000 for 4 years was $300. What was the annual rate of interest?
4. Complete the table.

Principal	Annual Rate	Time	Simple Interest	
820	5%	4 months		
1,350	7.	5%	5 years	
$1 800	8%	70 days	(ordinary)	
	12%	10 months	$ 40	
$1,500	2 years	$180		
$2,400	5.25%			$504
$7,960	15%	250 days	(exact)	
$ 675	10%	80 days	(banker's)	

5. Bob invested $2,700 at 11% per year simple interest for 15 months. How much interest did he receive on the investment?
6. A man borrowed $500 on June 1 at 18% per year exact simple interest. He repaid the loan in full on the following August 30, What was the total amount repaid?

Compound Interest

Simple interest is computed on a principal which remains unchanged for a specific period of time. Compound interest is calculated on a principal that changes at the end of stated time period when interest is added to it. The time period may be any interval during the year such as annually, semiannually, quarterly, monthly or daily. When simple interest is added to the principal it is said to be compounded, that is, the sum becomes the new principal to be used during the next interest period. The difference between the original principal and the amount it has become at the end of any period of time is known as compound interest.

To calculate compound interest, divide the annual rate of interest by the number of interest periods in the year. Multiply the result by the principal to obtain the interest for the period. Add this amount to the principal to find the new principal at the beginning of the next

interest period. Repeat this procedure for the desired number of interest periods. The difference between the final amount and the original principal is the compound interest accumulated.

Example:	John invested $500 at 6% compounded monthly. How much compound interest did he earn during the tour months?
Solution:	Monthly rate of interest is 6% 12 .5%

Month	Balance at Beginning of Month	Interest	Balance at End of Month
1	$500.00	.5/100500/12.50	$502.50
2	$502.50	.5/100 x 502.50/1 = 2.51	$505.01
3	$505.01	.5/100 x 505.01/1 = 2.53	$507.54
4	$507.54	.5/100 x 507.54/1 = 2.54	$510.08

$510.08 $500.00 = $10.08 Compound Interest Earned in 4 most

Solve the following set of problems.

1. How many interest periods are there in six years if interest is compounded and paid annually? Quarterly? Semiannually? If the interest rate is 10% per year, what is the interest rate per period of time for each of these interest periods?
2. If a person deposits $500 in a savings account, how much will he have at the end of two years if the interest is compounded semiannually at 5.5% per year? ‘What amount of compound interest will he earn?
3. Mary invested $2,500 at 8% interest per year compounded quarterly. How much did she have at end of 1 1/2 years? How much compound interest did she receive?
4. How much more compound interest will $850 earn at 6.5% compounded quarterly as compared to semiannually at the rate of 14% per year?

Compound Interest Table

To calculate compound interest with pencil and paper for sums in excess of four or five interest periods is a very tedious and time consuming chore. Where computation are long, tables have been worked out to reduce the arithmetical processes to a minimum. The compound interest table below shows the amount to which one dollar grows when invested at compound interest, at a specified rate, and over a specified number of interest periods.

Using the table, compound interest may be found in the following way:

1. Divide the annual rate of interest by the number of interest periods in one year. The result is the rate of interest for each period.
2. Multiply the number of interest periods in one year by the number of years given in the problem. The result is the total number of interest periods to be used.
3. Read down under the column headed “interest periods” until you reach the total number of interest periods to be used. Follow this line across until you reach the column with the rate of interest found in step 1 for each period. The amount shown in this position in the table is the amount to which $1.00 has grown in the given number of years at the given percent.
4. Multiply this amount by the principal to obtain the total amount to which the principal has increased.
5. Compound Interest Total Amount Original Principal.

Example:	How much will $925 amount to in ten years at 6% per year compounded semiannually? What amount of compound interest will be accumulated?
Solution:	1. The rate of interest for one interest period is 6 Ö 2 =3%.
	2. The number of interest periods is 10 x 2 = 20.
	3. In the compound interest table below, read down under the column headed “interest periods” to 20. Read across the line on which 20 appears to the column headed 3%. The amount shown is 1.8061. This means that $1.00 will increase to $1.8061 in ten years when compounded semiannually at 6%.
	4. To find the amount to which $925 will increase, multiply $1.8061 by 925. $1.8061 x 925= $1670.6425 = $1670.64.
	5. The compound interest earned is $1,670.64 $925.00 = $745.64.

To what amount will each of the following increase? How much compound interest will each accumulate?

(figure available in print form)

Ginn and Company, 1960.

Betz, William, et al. *Everyday General Mathematics Book One.* Revised Edition. Boston: Ginn and Company, 1960.

A mathematics textbook designed for noncollege bound students. While offering a substantial amount of mathematical training, it is concerned directly with immediate application in everyday life. Special attention is given to historical and cultural background.

———. *Everyday General Mathematics Book Two* . Boston: Ginn and Company, 1960.

Book two carries forward the type of work begun in Book one.

Bolster, Carey, and Woodburn, H. Douglas. *Mathematics in Life* . Glenview, Illinois: Scott Foresman and Company, 1977.

A fine textbook for general mathematics classes on the high school level. It stresses basic skills and gives pretests and posttests to measure the progress made by students. Following each skill are consumer applications of the skill. Recreational puzzles are provided to capture the interest of students.

———. *Consumer and Career Mathematics.* Glenview, Illinois: Scott Foresman and Company, 1978.

A textbook for students enrolled in business arithmetic courses on the high school level. It features problems faced by the consumer in everyday life.

Guthrie, Mearl H., and Selden, William. *Today's Business Mathematics* . New York: Pitman Publishing Company, 1967.

A textworkbook developed for high school students in business education. It presents an explanation of the skills, techniques and procedures necessary for employees of any store or office.

Grossnickle, Foster E. *Fundamental Mathematics* . New York: Holt, Rinehart and Winston, Incorporated, 1971.

An excellent book on elementary arithmetic. Essential portions of modern mathematics as well as informal geometry and beginning algebra have been included. The book provides a good background for further study of modern mathematics.

Hart, Walter W., et al. *Mathematics in Daily Use.* Boston: D. C. Heath and Company, 1966.

Contains subject matter, instruction and practice in mathematics that the majority of people use in their daily affairs. Maximum attention is given to arithmetical processes and to problems solved by them.

Parsky, Larry M. *Target Mathematics for the Worker.* Johnstown, Yennsylvania: Mafex Associates, Incorporated, 1969.

One in a series of workbooks designed for practice in mathematics used in daily life. Problems faced by the worker are emphasized.

Piper, Edwin B., and Gruber, Joseph. *Applied Business Mathematics.* Eighth Edition. Cincinnati: SouthWestern Publishing Company, 1965.

This book was designed to have value for consumer use as well as for business use. It develops the fundamental principles and operations through a study of problems faced by every individual daily. Optional topics have been included to challenge the faster or more capable students.

Rosenberg, R. Robert. *Business Mathematics Principles and Practice.* Fourth Edition. Chicago McGrawHill Book Company, Incorporated, 1953.

A comprehensive text on commercial arithmetic. Practice is provided in all important topics of fundamental arithmetic with emphasis on the arithmetic of business. Its major purpose is to equip the student with a working knowledge of the basic principles of business mathematics that will play a significant part in his adult activities.

Shaw, Bryce H., et al. *Mathematics Plus* . Boston: HoughtonMifflin Company, 1979.

A textbook for secondary level students who will terminate their formal education at the end of high school. It contains many exercises in basic skill as well as consumer applications, business applications and technical applications.

Stein, Edwin I. *Fundamentals of Mathematics.* Modern Edition. Boston: Allyn and Bacon, Incorporated, 1968.

A comprehensive basal textbook in contemporary general mathematics for the Junior and senior high schools. It contains all the basic topics of mathematics and includes computational practice and related enrichment materials. It is ideal for use in consumer mathematics, commercial arithmetic, and shop mathematics classes in the high school.

Thompson, Linda L. *Consumer Mathematics* Encino,California: Glencoe Publishing Company, Incorporated, 1978.

An excellent book to help the student recognize what is involved in being a good consumer and to develop the mathematics skills needed to solve consumer problems.

Student Reading List

Brueckner, Leo J., et al. *The New Thinking With Numbers.* Philadelphia: The John C. Winston Company, 1959. ~

An arithmetic book suitable for students at the seventh grade level. The author stresses seeing, thinking and doing. In addition to fundamental arithmetic skills the book contains applications of mathematics in the home and in business.

Kravitz, Wallace W., and Brant, Vincent. *Consumer Related Mathematics.* New York: Holt, Rinehart and Winston, 1976.

A nicely illustrated book for high school studenta enrolled in consumer mathematics. It endeavors to develop, apply and maintain mathematical skills. Included are descriptions of occupations using these skills and a glossary of terms used throughout the book.

Linder, Bertram L. *Economics for Young Adults.* New York: W. H. Sadlier, Incorporated, 1973.

A nicely illustrated, practical guide to understanding the realities of economics as the student will actually experience them in life.

Marks, John L., et al. *Mathematics We Need.* Boston: Ginn and Company, 1965.

An arithmetic book for students at the junior high school level which includes basic mathematical skills as well as an introduction to topics of modern mathematics and geometry. Many extra examples and problems are included for practice.

Skeen, Kenneth C. and Whitmore, Edward H. *Modern Mathematics Book One* . Syracuse, New York: The L. W. Singer Company, 1965.

A careful transition from arithmetic to algebra is provided. It features a review and maintenance program. Careful attention has been given to readability. An introduction to geometry is included.

Stokes, C. Newton, et al. *Arithmetic in My World* . Boston: Allyn and Bacon, Incorporated, 1958.

A series of arithmetic books designed for the junior high school student. To establish desirable growth patterns, problems have been organized into units of work composed of activities which are in reality areas of development.

Thordarson, T. W., and Anderson, R Perry. Basic *Mathematics for High Schools* . Chicago: Allyn and Bacon, Incorporated, 1965.

A textbook to help high school students acquire basic mathematical skills and knowledge which will enable them to make accurate comparisons and computations. Explanations are clear and accompanied by examples drawn from experiences common to most high school students.