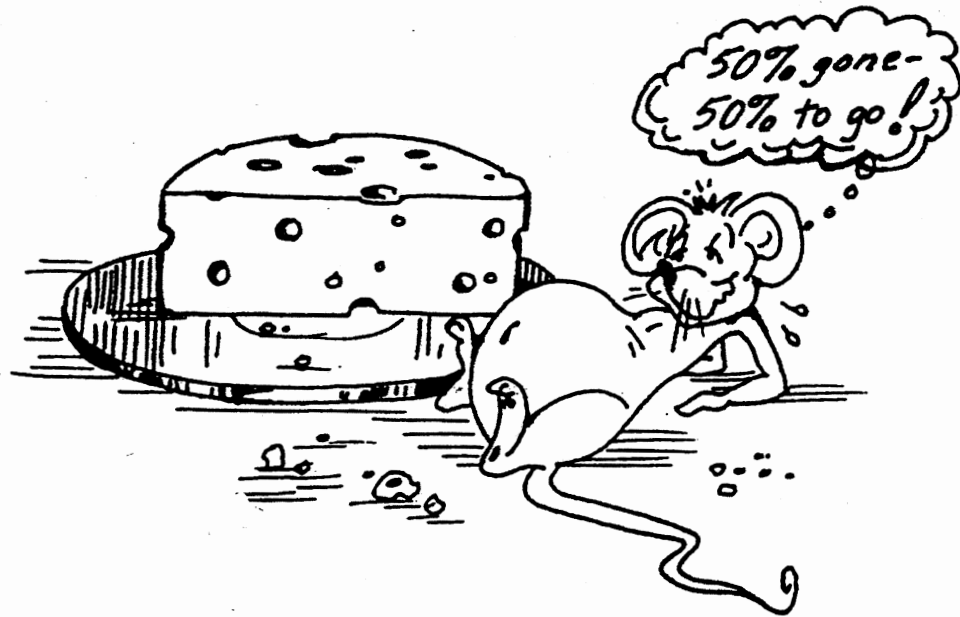


PRINCIPLES OF



PERCENTS



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Principles of Percents

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Textbook Publishers
Introduction to
PRINCIPLES OF PERCENTS

Welcome to the study of mathematics -- *Percents!*

This math book by Textbook Publishers will be different from any other math book you have studied. Most conventional math books have pages and pages of problems to solve. This book has very few. Here is why.

Math is actually just a TOOL for you to learn an *intrinsic value*. "Intrinsic" means "something inside." An intrinsic value becomes part of your heart and mind. It becomes part of you. The intrinsic value of math is knowing how to THINK AND SELF-GOVERN. This intrinsic value will give you freedom of thought!

To help you learn how to think and self-govern, you will be creating and solving your OWN math problems. Here is why a knowledge of how to do that is so important:

1. When you create and solve your own problems, you are learning how to THINK. Math books which have worksheets created by someone else teach students how to follow instructions, but at the same time students are robbed of the ability to think and reason.
2. When you have learned how to think through math problems, you can then apply math principles in every-day life. For example, you will be able to give accurate change as a cashier, or balance your own check book. No matter what your life's profession is, you will be able to apply math intelligently. You will be GOVERNING YOURSELF.
3. When you create and solve your own math problems, you have not only learned how to think, but you will find that you learn math ten times faster than by filling in the blanks of someone else's problems. This fact has been proven by testing hundreds, even thousands, of students. By reasoning through each math process along the way, you will UNDERSTAND math.
4. When you create and solve your own problems, your individual attitudes of life magically appear. Students who create simple, boring problems for themselves find out that they are not motivated about math. When unmotivated students do the minimums in math, they may also be doing the minimums in other aspects of their lives as well. For them, life itself is often boring. Students who create challenging problems for themselves will excel in math and will become excited about learning to think. Their ATTITUDES about life also become motivational and exciting.

Why It Is Important to Understand the Principles of Percents

Percent means "out of 100." We can use the percent symbol (%) to write a fraction with a common denominator of 100. For example, instead of saying "8 out of every 100 people who attend Church come late," we can say "8% of people who attend Church come late."

A percent can always be written as a decimal, and a decimal can be written as a percent, by moving the decimal point two places to the right like this:

$$\mathbf{3/4 = 0.75 = 0.75. = 75\%}$$

As you can see, it is important to understand Percents for figuring fractions and decimals. The study of Percents is useful in many other ways as well. For example:

- At the clothing store, you might see a sale where all shirts are 10% off, or 25% off, 30% off, or 50% off, etc. If you are on a budget, you will want to figure in your head how much the item will cost at the sale price to see if you are able to purchase it.
- At the bank, your savings may earn 3% interest. (You will learn more about interest in the Textbook Publishers booklet, "Principles of Business Math.")
- If you get a job where you earn a "commission," this commission is a percentage of what the company earned from the sale of the item you sold. You get to keep that percentage as your personal earnings.
- The sports page is a great place to find the percentages. You will see passing averages, batting averages, games lost and won, etc. When you know the meaning of percents you will understand those scores and percentages.
- Taxes are a certain percentage of buying and selling, as well as earnings.
- Figuring scores on a test are often shown as a percentage "correct" or "incorrect."

This booklet will help you learn about percentages and how to figure them.

Introduction to PERCENTS

You may find it interesting to know that the word "cent" in the French language means "one hundred." Perhaps we borrowed the word "cent" from the French to name the 100 pennies, or "cents" in our American dollar.

This concept may help you when "per"-cents are used in math, because parts of one hundred are being figured.

This section will help you learn how to recognize percents and change them into fractions and decimals. You will also learn how to change fractions and decimals into percents.

PRINCIPLE #1

**PERCENT MEANS "PARTS OF
100," AND ITS SYMBOL
IS WRITTEN LIKE THIS: %**

EXAMPLES

50 is the same as 50% of one hundred.
25 is the same as 25% of one hundred.
90 is the same as 90% of one hundred.

Learning Exercise

Write ten numbers under 100, using the percent symbol.

When changing a percent into a fraction, first drop the percent sign. Then multiply the number by $\frac{1}{100}$. Reduce the answer to its simplest form.

PRINCIPLE #2

**PERCENTS CAN BE
WRITTEN AS FRACTIONS BY
MULTIPLYING THE
PERCENT BY $\frac{1}{100}$.**

EXAMPLE

$$55\% = 55 \times \frac{1}{100} = \frac{55}{100} \text{ or } \frac{11}{20}$$

Learning Exercise

Write ten percents and change them to fractions,
as shown above.

(Be sure to reduce them to simplest form.)

To change a percent into a decimal, just drop the percent sign and move the decimal point TWO PLACES TO THE LEFT.

PRINCIPLE #4

**PERCENTS CAN BE
WRITTEN AS DECIMALS.**

EXAMPLE

$$95\% = \boxed{.95}$$

For single-digit numbers, add zeros until the decimal appears 2 places to the left of the original number:

$$3\% = \boxed{.03}$$

$$.05\% = \boxed{.0005}$$

Learning Exercise

Write ten percentages and change them to decimals.

It's easy to change a decimal to a percent! Move the decimal point (no matter where it appears in the number) TWO PLACES TO THE RIGHT, and add the percent symbol.

PRINCIPLE #5

**DECIMALS CAN BE
CHANGED
INTO PERCENTS.**

EXAMPLES

$$0.83 = 83\% \qquad 5.439 = 543.9\%$$

As with principle #4, add zeros to the original number to ensure the decimal is 2 places to the right:

$$4.9 = 490\% \qquad 1 = 100\% \qquad .5 = 50\%$$

Learning Exercise

Write ten numbers containing decimals and change them to percents.

*** Optional Review #1 ***

REVIEW #1

Can you answer these questions?

(Try to remember without looking back!)

1. What does "percent" mean?

2. Convert the following percents into fractions:

a. $72\% =$

b. $116\% =$

c. $27\% =$

d. $120\% =$

3. Convert the following fractions into percents: (Round to the nearest hundredth)

a. $\frac{2}{13} =$

b. $\frac{5}{7} =$

c. $\frac{8}{9} =$

d. $1\frac{1}{4} =$

4. Convert the following percents into decimals:

a. $6\% =$

b. $119\% =$

c. $77\% =$

d. $237\% =$

5. Convert the following decimals into percents:

a. $.69 =$

b. $2.489 =$

c. $3.7 =$

d. $35.29 =$