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THE MAGIC OF DECIMALS AND PERCENTS

Decimals and percents are everywhere. If you go to the grocery store, you'll find the cost of everything expressed in decimals. The weight of the meat is also expressed in decimals. And if there is a sale on meat, it might be expressed as a percent. If you want to succeed at math and really understand the world you live in, you have to get to know decimals and percents.

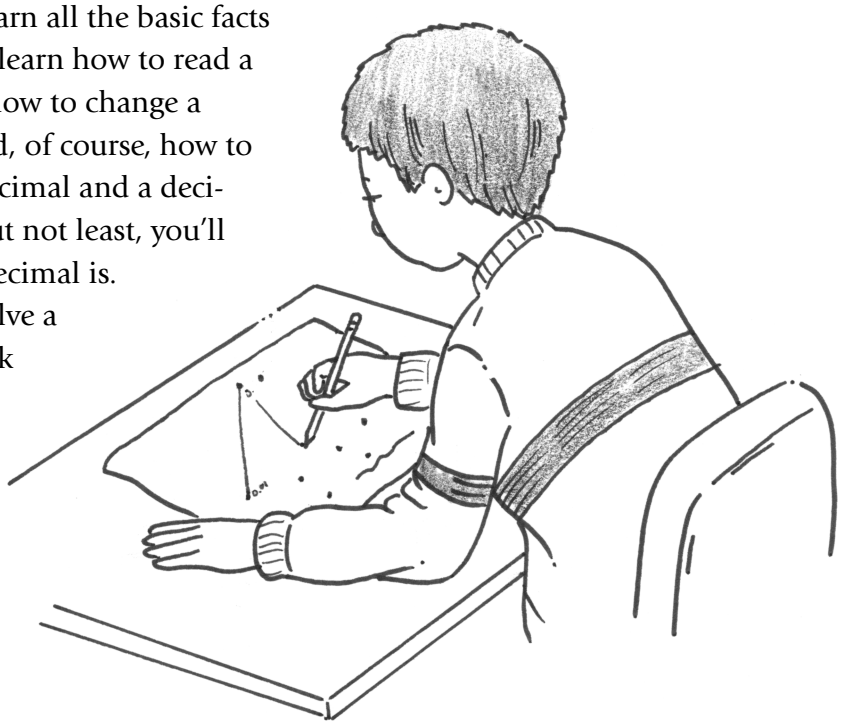
But what are decimals? Like fractions, decimals are numbers that represent part of a whole, but unlike fractions, decimals don't use a fraction bar. Instead they use a decimal point. Everything to the right of the decimal point is less than zero, and everything to the left of the decimal point is greater than zero. One thing that makes decimals easy to work with is that, unlike fractions, you don't have to find a common denominator to add or subtract them.

You will use decimals and percents every day of your life. So you might as well start practicing. Begin with the fun activities in this book and you'll soon be a master of decimals and percents. Then you can proudly display the decimals and percents master certificate at the back of this book.

II

The Facts on Decimals

In this section, you'll learn all the basic facts about decimals. You'll learn how to read a decimal and write one, how to change a decimal to a percent, and, of course, how to change a fraction to a decimal and a decimal to a fraction. Last but not least, you'll learn what a repeating decimal is. While learning, you'll solve a decimal dot-to-dot, check out the stats of your favorite baseball team on the Internet, and play some fast-paced games with your friends.



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Scavenger Hunt

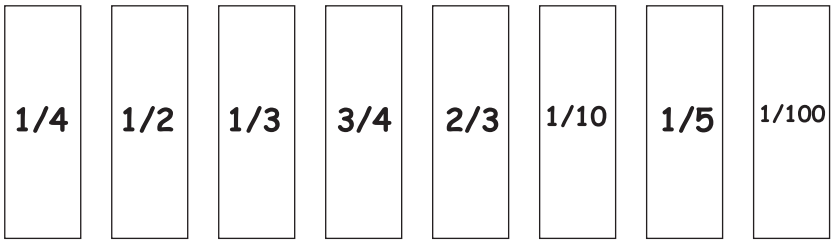
Fractions, decimals, and percents express parts of wholes. In fact, you can use fractions, decimals, and percents to describe parts of just about anything. The statements "$^3/_5$ of Americans prefer chocolate ice cream over vanilla," "0.6 of Americans prefer chocolate ice cream over vanilla," and "60% of Americans prefer chocolate ice cream over vanilla" all mean the same thing. Which version you use depends partly on convention (what other people do in the same situation) and partly on practicality (it's easier to say "two-thirds" than "0.666666666 . . ."). In this game, you'll compete with friends to find examples of fractions, decimals, and percents in a newspaper.

MATERIALS

- 2 or more players
- several sheets of white paper
- pencils
- old newspapers
- scissors
- glue

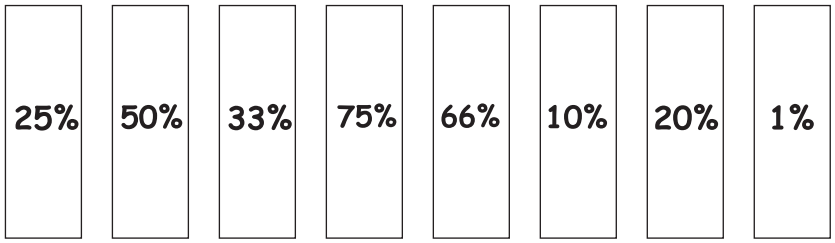
Game Preparation

1. Each player should fold a piece of white paper into eight sections. Write one of the following fractions at the top of each section:



2. Each player should fold a second piece of white paper into eight sections. Write one of the following decimals in each section:

3. Each player should fold a third sheet of white paper into eight sections. Write one of the following percents in each section.



Game Rules

1. Each player should take a stack of newspapers. Players have 30 minutes to look through the newspapers and to cut out and glue on their sheets examples of any of the listed fractions, decimals, and percents.
2. After the 30 minutes are up, players should count the numbers of fractions, decimals, and percents on their sheets. The player who has the most wins the scavenger hunt.

BRAIN Stretcher

Did the newspaper contain more examples of fractions, decimals, or percents?

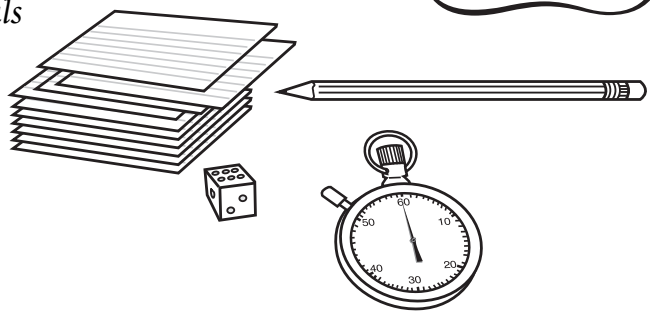
What section of the newspaper contained the most examples of fractions, decimals, and percents?

2 Name That Place!

The value of a numeral depends on its place in the number. Look at any number. As you move to the left, every place is 10 times larger than the previous place. As you move to the right, every place is one-tenth the place on its left. Here are the values of common places: millions, hundred-thousands, ten-thousands, hundreds, tens, ones, (DECIMAL POINT) tenths, hundredths, thousandths, ten-thousandths, hundred-thousandths, millionths. Notice that the decimal point separates the numerals that are greater than one from the numerals that are less than one. Learn the value of decimal numbers with this fast-paced game.

MATERIALS

2 players
10 index cards
pencil
die
stopwatch or watch with second hand



Game Preparation

1. Write one of these numbers on each index card.

100,200,345.6	65.4321
3,040,500,126	0.213645
3,456.12	102,030.40506
2.65431	123.456
60.12345	6,543.0201

Game Rules

1. Shuffle the index cards and turn them facedown in front of player 1.
2. Player 1 rolls the die. The number rolled is the *Name That Place!* number.
3. Player 2 starts the stopwatch and gives player 1 one minute to *Name That Place!* on the entire stack of 10 cards.
4. Player 1 turns over the top card. He or she looks at the decimal on the top card and names the place in which the rolled number appears in the place in the card.

   Example: If the number on the card is 123.456 and the rolled number is 6, then the player shouts "Thousandths!." If the rolled number is 5, the player shouts "Hundredths!." If the rolled number is 4, the player shouts "Tenths!" and so on.
5. Player 1 turns over the rest of the cards one by one and repeats step 4 for each card. *Note:* The rolled number stays the same through each player's turn. Each player only rolls the die once.
6. If player 1 names all 10 place values correctly, he or she wins one point.
7. If a player names a place value incorrectly, he or she loses the rest of his or her turn.
8. After player 1's turn is over, the index cards are shuffled and placed facedown in front of player 2.
9. Player 2 rolls the die to get a new *Name That Place!* number. Player 2 now has one minute to see if he or she can *Name That Place!* for the same 10 index cards. If player 2 is successful, he or she earns one point. Player 1 sets the timer for this turn.
10. Players alternate turns at *Name That Place!* until one player gets five points. That player is the winner.

Tips and Tricks

Draw a chart like this one. Enter your decimal numbers into the chart and use the top row of the chart to help you read them.

Thousands	Hundreds	Tens	Ones	DECIMAL POINT	Tenths	Hundredths	Thousandths