number operations

describing quantities

9-12

Use appropriate ratios and proportions, including constant rates, when needed to make calculations for solving real-world problems.

Numbers can be written with bases other than ten. The simplest base, 2, uses just two symbols (1 and 0, or on and off).

Representing very large or very small numbers in terms of powers of ten makes it easier to perform calculations using those numbers.

Comparison of numbers of very different size can be made approximately by expressing them as nearest powers of ten.

6-8

The operations + and - are inverses of each other#one undoes what the other does; likewise x and Ã·.

The system of using the Arabic numerals 0-9 is just one way of representing numbers. The very old Roman numerals are now used primarily for dates, clock faces, or ordering chapters in a book.

A number line can be extended on the other side of zero to represent negative numbers. Negative numbers allow subtraction of a bigger number from a smaller number to make sense, and are often used when something can be

Numbers can be represented by using sequences of only two symbols (such as 1 and 0, on and off); computers work this way.

Express numbers like 100, 1,000, and 1,000,000 as powers of ten.

How a quantity is expressed depends on how precise the measurement is and how precise an answer is needed.

A number expressed in the form a/b can mean different things: a parts of size 1/b each, a divided by b, or a compared to b.

Exponents can be used to represent how many times a number is to be multiplied by itself. For example, 4^3 = 4 x 4 x 4.

Use, interpret, and compare numbers in several equivalent forms such as integers, fractions, decimals, and percents.

The same number can be written in different forms, depending on its intended use.

3-5

Add and subtract fractions with common denominators.

The meaning of a digit in a many-digit number depends on its position.

Make calculations when necessary to solve real-world problems and decide whether to make the calculation mentally, on paper, or with the help of a calculator or computer.

Use fractions and decimals, translating when necessary between commonly encountered fractions (halves, fourths, fifths, tenths, and hundredths) and their decimal equivalents.

In some situations, "0" means none of something, but in others it may be just the label of some point on a scale, such as a number line.

Add or subtract any two whole numbers between 1 and 100.

Symbols are used to signify which operations to perform on numbers. The most common are +, -, x, and Ã·.

Fractions are numbers used to represent part of something.

Specifying a quantity requires both a number and a unit.

K-2

Give the sums and differences of single-digit numbers.

Sometimes in describing things there is a need to use numbers between whole numbers.

The first digit of a two-digit number describes how many sets of 10 there are in the number.

A quantity is stated as a number and a label, such as 4 inches or 7 blocks.

Use whole numbers in ordering, counting, identifying, measuring, and describing objects and events.

Numbers can be used to count things, place them in order, measure them, or name them.

An important kind of relationship between things is one thing being part of a whole.