We will explore decimal numbers and how to add or subtract them.

Decimals: Addition and Subtraction of Decimal Numbers (Section 3.1)

First, let's dissect a decimal number and look at its parts. Recall, the number 7,532 means $7000 + 500 + 30 + 2$. We could also write this as

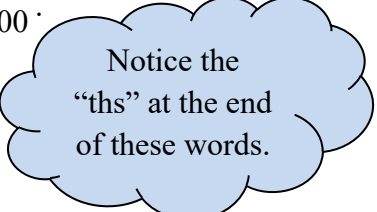$7,532 = 7 \times 1000 \ + \ 5 \times 100 \ + \ 3 \times 10 \ + \ 2 \times 1$.

As we have said before, the place values (tens, hundreds, etc.) are based on tens.

You likely know that the digits to the *right* of a decimal point are based on tens too. These digits represent amounts of the fractions $\frac{1}{10}, \frac{1}{100}, \frac{1}{1000}, \frac{1}{10000}, \cdots$

We will consider the number 7,532.678 here. This means $7,532 + 0.6 + 0.07 + 0.008$.

We can see (by doing the division) that 0.6 is the same as 6/10 or $6 \times \frac{1}{10}$. The decimal part of our number could be written as $6 \times \frac{1}{10} \ + \ 7 \times \frac{1}{100} \ + \ 8 \times \frac{1}{1000}$.
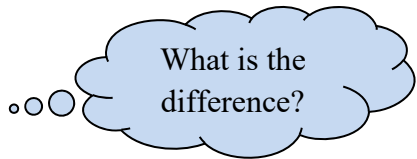
Notice the "ths" at the end of these words.

These parts are pronounced "six tenths", "seven hundredths", and "eight thousandths". We could say the whole as "six hundred seventy-eight thousandths".

Recall, the decimal point is pronounced as "and". Hence, we will say the number 7,532.678 as "seven thousand, five hundred, thirty-two **and** six hundred seventy-eight thousandths".

expl 1: Write the following as numerals.
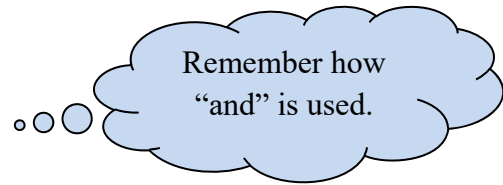a.) seventy-two hundred and thirty-six hundredths

What is the difference?

b.) seventy-two hundred and thirty-six thousandths

Definitions: The digits to the left of the decimal point is the **whole number part**. The digits to the right of the decimal point is called the **fraction part** or **decimal digits**.

When we have *no* whole number part, as in a number like .6, we will often write 0.6 as it makes the decimal point more obvious and harder to miss. This is called a **leading zero**.
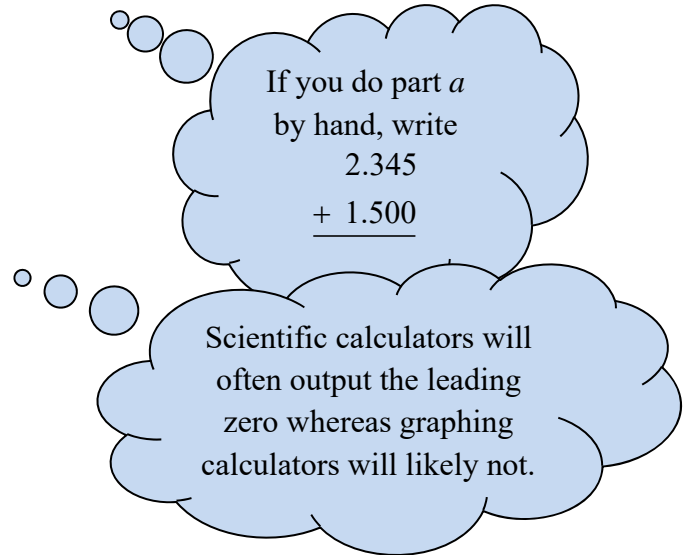
expl 2: Write the number 100.35 in words.

Addition and Subtraction:
If you do these by hand, it is important to line up the decimal points and digits by place value. We will focus on using the calculator.
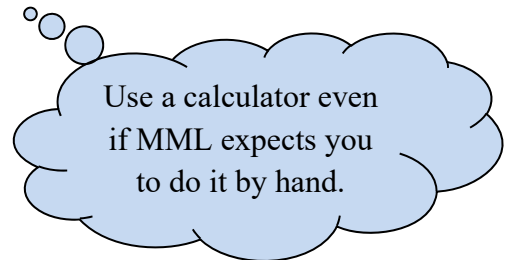
expl 3: Add. Use a calculator.
a.) $2.345 + 1.5$

If you do part a by hand, write
2.345
+ 1.500

b.) $0.038 + 0.00462$

Scientific calculators will often output the leading zero whereas graphing calculators will likely not.

expl 4: A contractor included the following in the cost of a job. What is the total?
Material	$877.85
Trucking	$62.80
Permits	$250.00
Labor	$1845.50
Profit	$450.00

Use a calculator even if MML expects you to do it by hand.

expl 5: A piece of pipe 8.4 in. long is cut from a piece 40.8 in. long. What is the length of the longer piece remaining if the width of the saw cut is 0.2 in.? Drawing a picture may help.

expl 6: Find the closing balance on October 22 of this checkbook.

Date	Balance	Withdrawals	Deposits
Oct. 1	$367.21		
Oct. 3		$167.05	
Oct. 4		$104.97	
Oct. 8			$357.41
Oct. 16		$ 87.50	
Oct. 18		$ 9.43	
Oct. 20		$ 30.09	
Oct. 22			$364.85

We add deposits and subtract withdrawals. Try to enter it as one long string.