

Introduction to Place Value

The value of a digit depends on its **place** in the **Place Value Chart**. Numbers to the left of the decimal point represent whole numbers and numbers to the right of the decimal point represent parts of a whole number.

For example, money consists of wholes and parts. Whole dollars (\$) are to the left of the decimal point and cents (¢) (parts of a dollar) are to the right of the decimal point.

Place Value Chart

Ten millions (10 000 000)	Millions (1 000 000)	Hundred thousands (100 000)	Ten thousands (10 000)	Thousands (1000)	Hundreds (100)	Tens (10)	Ones (1)	Decimal Point	Tenths $\left(\frac{1}{10}\right)$	Hundredths $\left(\frac{1}{100}\right)$	Thousandths $\left(\frac{1}{1000}\right)$	Ten thousandths $\left(\frac{1}{10000}\right)$
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Numbers are getting bigger to the left. Numbers are getting smaller to the right.

Note: Numbers to the right of the decimal end in “ths” and numbers to the left of the decimal mostly end in “ands” and “eds”.

All numbers can be broken down into the columns above.

Example 1:

The number 52 can be broken down into five (5) tens and two (2) ones.

$$52 = 5 \text{ tens} + 2 \text{ ones}$$

$$52 = 5 \times 10 + 2 \times 1$$






Example 2:

The number 10 568 can be broken down into one (1) ten thousand, zero (0) thousands, five (5) hundreds, six (6) tens and eight (8) ones.

10568 = 1 **ten thousand** + 0 **thousand** + 5 **hundreds** + 6 **tens** + 8 **ones**

10568 = 1 x **10 000** + 0 x **1000** + 5 x **100** + 6 x **10** + 8 x **1**

As mentioned above, an application of the Place Value Chart includes money.

\$100 Hundreds (100)	\$10 Tens (10)	Loonies Ones (1)	Decimal Point	Dimes Tenths $\left(\frac{1}{10}\right)$	Pennies Hundredths $\left(\frac{1}{100}\right)$
100x larger than a dollar	10x larger than a dollar	dollar	x	10x smaller than a dollar	100x smaller than a dollar
					 Note: 5 pennies is equal to a nickel

Notice: We can make a dollar with 10 dimes or 100 pennies. We can also make a ten dollar bill with 10 loonies and a hundred dollar bill with 100 loonies.

Example 3:

The dollar amount \$472.65 can be broken down into four (4) hundred-dollar bills, seven (7) ten-dollar bills, two (2) loonies, six (6) dimes and five (5) cents (or one nickel).

\$472.65 = 4 **hundred-dollar bills** + 7 **ten-dollar bills** + 2 **loonies** + 6 **dimes** and 5 **cents** (or 1 **nickel**).

\$472.65 = 4 x **400** + 7 x **10** + 2 x **1** + 6 x **0.10** + 5 x **0.01**

Example 4:

Place a less than (<), greater than (>) or equal (=) sign between the given numbers.

Note: The open end of the symbol represents the larger number while the pointed end represents the smaller number. (i.e. greater than > less than)

- a) $3.5 > 2.5$
- b) $40.05 < 40.50$
- c) $7.01 = 7.010$

Exercises:

1) Place the following numbers in the place value chart.

Number	hundred thousands	ten thousands	thousands	hundreds	tens	ones	decimal point	tenths	hundredths	thousandths	ten thousandths
384.5064							x				
3845.064							x				
38450.64							x				
384506.4							x				

2) Underline the digit in the “ones” column.

- a) 345
- b) 6
- c) 15.7
- d) 998.45

3) In the number 56873, underline the digit in the thousands place.

4) In the number 23.054, underline the digit in the hundredths place.

5) Place a less than (<), greater than (>) or equal (=) sign between the given numbers.

- a) 10 and 1.0
- b) 3809 and 3818
- c) 25.02 and 250.2

d) 4532.01 and 4532.008

e) 0.03 and 0.30

f) 220 and 202

g) 0.009 and 0.1

h) 6.0002 and 6.002

6) How many dimes do you need to make a ten-dollar bill?

7) How many pennies do you need to make a hundred-dollar bill?

Solutions:

1) Place the following numbers in the place value chart.

Number	hundred thousands	ten thousands	thousands	hundreds	tens	ones	decimal point	tenths	hundredths	thousandths	ten thousandths
384.5064				3	8	4	x	5	0	6	4
3845.064			3	8	4	5	x	0	6	4	
38450.64		3	8	4	5	0	x	6	4		
384506.4	3	8	4	5	0	6	x	4			

2) What is the number of the digit in the ones column?

a) 5 (345)

b) 6 (6)

c) 5 (15.7)

d) 8 (998.45)

3) 6 (56873)

4) 5 (23.054)

5) Place a less than (<), greater than (>) or equal (=) sign between the given numbers.

a) $10 > 1.0$

b) $3809 < 3818$

c) $25.02 < 250.2$

d) $4532.01 > 4532.008$

e) $0.03 < 0.30$

f) $220 > 202$

g) $0.009 < 0.1$

h) $6.0002 < 6.002$

6) 100

7) 10 000