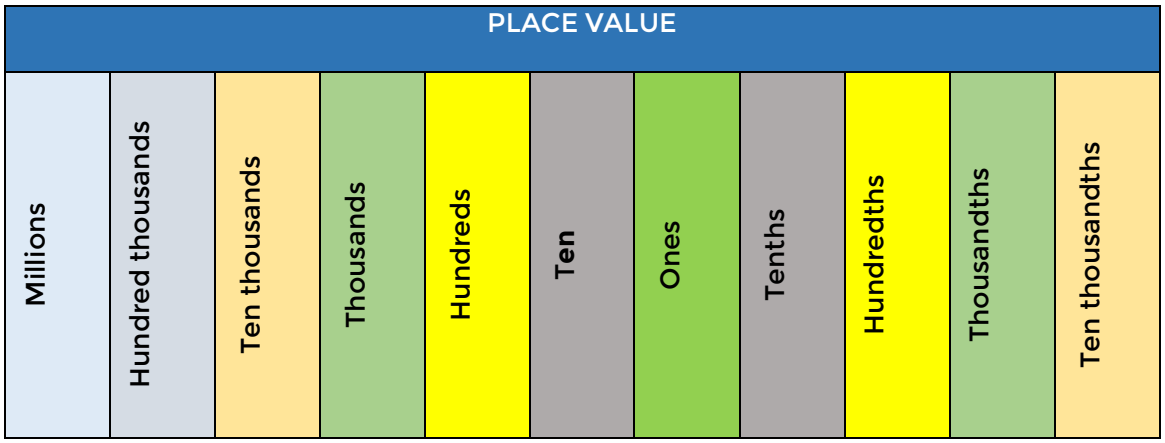
Decimals and Place Values

A place-value chart is used to find the value of a number. Look at the digits and the position of each digit.



decimal point

Knowing place-value is useful when comparing decimal numbers. Maram is asked to list 18.4, 17.6, and 21.5 in order from greatest to least.

STEP 1: Maram compares the first two numbers. She starts at the left. Both numbers have the same digit 1 in the tens place.

$18.4 \leftrightarrow 17.6$

So, Maram looks at the digits in the ones place. The first number has digit 8 in the ones place, while the second number has digit 7.

$18.4 \leftrightarrow 17.6$

- Since $8>7, 18.4> 17.6$

STEP 2: Maram compares the third number to the greatest number so far, the first number.

$21.5 \leftrightarrow 18.4$

- The third number has the digit 2 in the tens place, while the first number has the digit 1 in the tens place.
- Since $2 > 3,\ 21.5 > 18.4.$

Using what she has discovered, Maram makes the new list:

$21.5 > 18.4 > 17.6.$

A decimal number can be written in expanded form as a sum of the digit place value.

Decimal Number: 3.472

Expanded Form: 3 + 0.4 + 0.07 + 0.002

Examples:

A- Write the numbers in expanded form.

1) 4.65
4 + 0.6 + 0.05

2) 0.839
0.8 + 0.03 + 0.009

3) 12.502
12 + 0.5 + 0.002

B- Order from greatest to least.

4) 8.23, 8.226, 8.234
8.226 – 8.23 – 8.234

5) 0.645, 0.649, 0.64
0.64 – 0.645 – 0.649

C- Order from least to greatest.

6) 1.871, 1.178, 1.781
1.178 – 1.781 – 1.871

7) 15.562, 15.569, 15.56
15.56 – 15.652 – 15.659