

Decimals



The Philomath Club



01.



What Are Decimals?



- Decimals are numbers that are less than 1 but greater than 0

$0 < 0.1 < 1$ (0.1 is between 0 and 1, so it is a decimal)

- They appear to the right of the decimal point

whole number

decimal

39.1

“39” is the whole number part

“.1” is the decimal part

- “39.1” is read...

“Thirty-nine and one tenth”

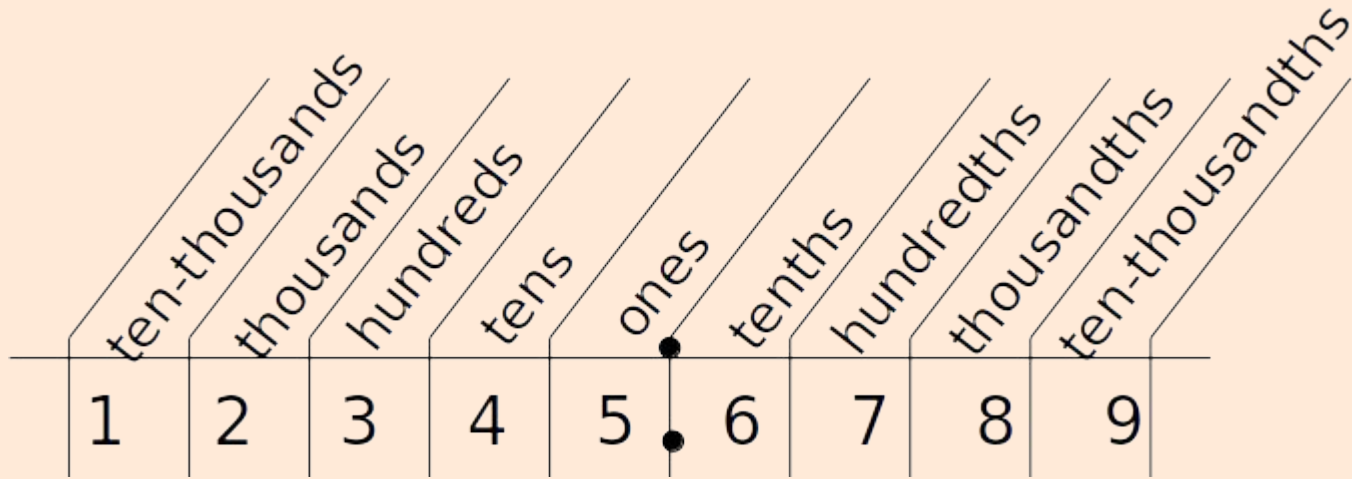
Reading Examples

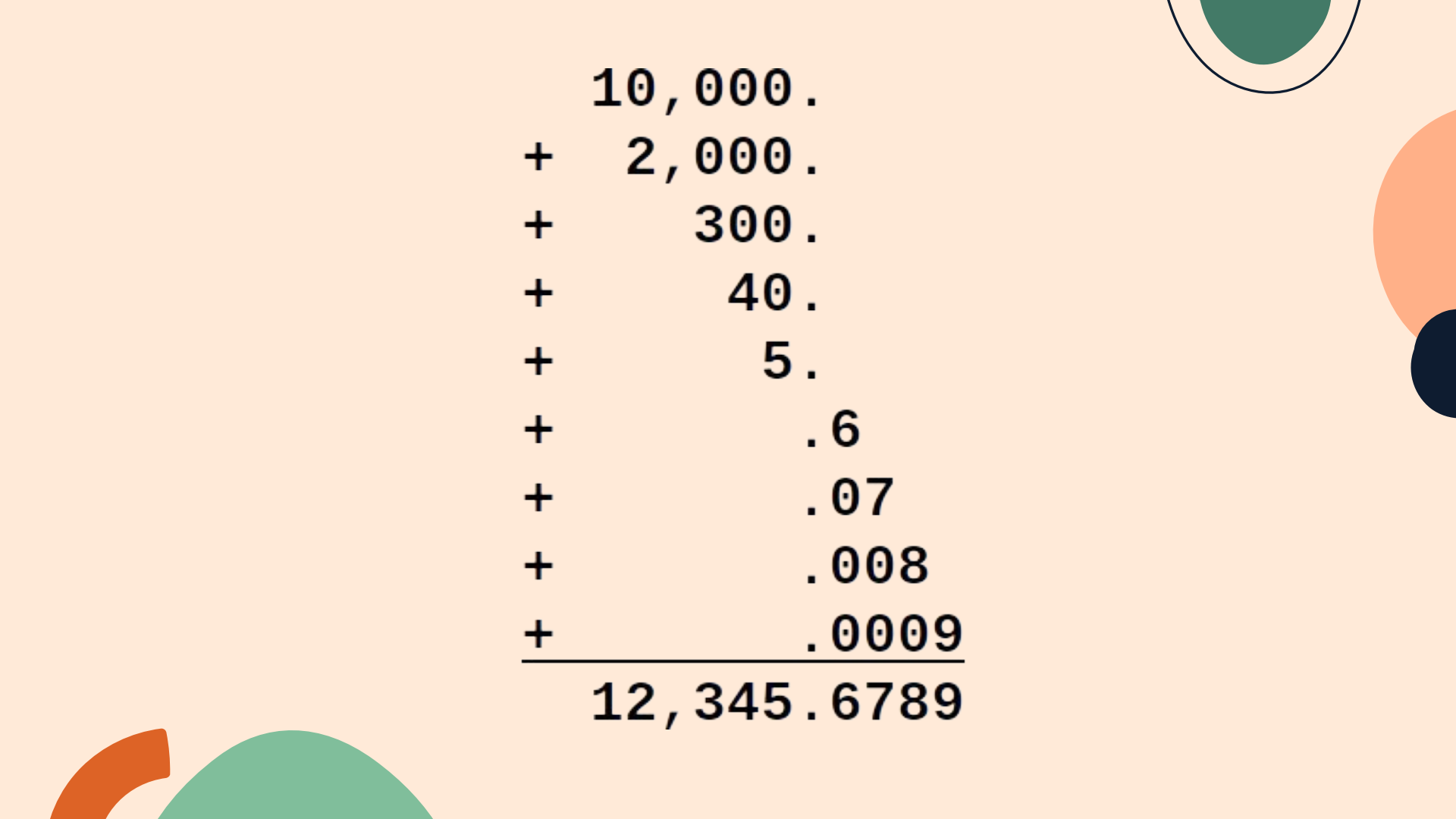
40.1 IS READ AS FOURTY POINT ONE


20.201 IS READ AS TWENTY POINT TWO ZERO ONE

30.30 IS READ AS THIRTY POINT THREE ZERO

Decimal Parts




$$\begin{array}{r} 10,000. \\ + 2,000. \\ + 300. \\ + 40. \\ + 5. \\ + .6 \\ + .07 \\ + .008 \\ + .0009 \\ \hline 12,345.6789 \end{array}$$




The “3” is in the hundreds column,
so there are “3 hundreds”.

If all the other numbers were
a 0, then the number would be
00300.0000, which is 300 (three hundred.)

The “7” is in the hundred**ths** column,
so there are “7 hundred**ths**.”

If every other number were a 0, then the number
would be 00000.0700, which is 0.07 (seven hundredths.)



Expressing decimals

$$12.234 = 10+2+ 2/10+3/100+4/1000$$

Note that 0.234 is the decimal part. Moreover,
 $0.234=2/10+3/100+4/1000 =$
 $200/1000+30/100+4/1000=234/1000$

Exercise

Try it yourself

What numbers are these?

Three and two hundredths = 3.02

Forty and two thousandth =

Twelve and twelve hundredths =

Eighty and eighty ten-thousands =

How do you say these numbers?

37.03 = Thirty-seven and three hundredths

9.04 =

20.040 =

100.01 =

Which of these are true:

A) $2.01 = 2.010$

B) $2.01 = 2.001$

C) $2.001 = 2.100$

D) $2.10 = 2.010$

E) $2.10 = 2.100$

F) $2.0010 = 2.001$



02

Addition and Subtraction



- Line up the decimals points
- Put zeroes in the blank spaces to help you see what you're adding
- Make sure of carry overs or borrowing

$$24.3 + 28.85 \rightarrow \begin{array}{r} 24.30 \\ +28.85 \\ \hline 53.15 \end{array}$$

$$18.62 - 3.8 \rightarrow \begin{array}{r} 18.62 \\ - \quad 3.80 \\ \hline 14.82 \end{array}$$

Try it yourself

$2.89 + 1.5 =$

$20.6 + 10.9 =$

$3.13 + 9 =$

$20 + 8.2 =$

$9.373 + 3.34 =$

$9 + 2.8 =$

$12.99 - 8.1 =$

$19 - 3.2 =$

$2.933 - 1.2 =$

$8.4 - 5.555 =$

$20 - 2.5 =$

$100 - 2.66 =$