0.12

0.5

0.03

DECIMALS

0.4

DECIMALS SUMMARY

Decimals

- The word "Decimal" means "based on 10"
- Decimals are required so that fractions with different denominators can be added easily.

Place Value

- Decimals have a point, which is used to separate the ones and the one-tenths place. This is also known as the place value
- As we move one digit to the left of the decimals place, the position is 10 times bigger, whereas when we move one digit to the right of the decimals place, the position is 10 times smaller.

Comparing Decimals

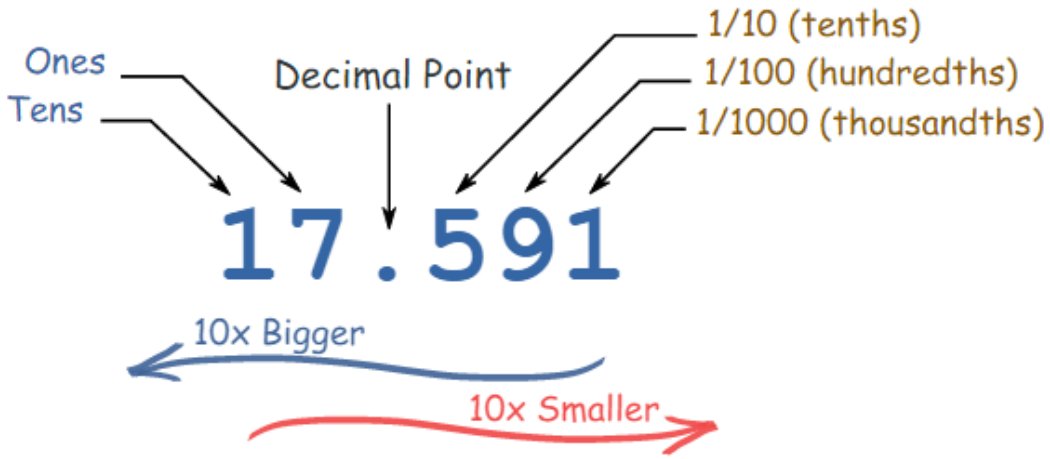
- If there are two decimal numbers we can compare them. Decimal comparisons start from the tenths place and then hundredths place, etc.
- If one decimal has a higher number in the tenths place then it is larger than a decimal with fewer tenths. The same place values should be compared, until one decimal is larger or there are no more places to compare. If each decimal place value is the same then the decimals are equal.
- A decimal number is also a fractional number. Comparing 0.7 and 0.07 is clearer if we compared 7/10 to 7/100. The fraction 7/10 is equivalent to 70/100 which is clearly larger than 7/100.

Fractions To Decimals

- Conversion of fractions to decimals can be done by first finding a number to multiply the denominator of the fraction to make it 10, or 100, or 1000, or any 1 followed by 0s.
- Multiply both the numerator along with the denominator by that number. Finally, write down just the top number, putting the decimal point in the correct spot (one space from the right hand side for every zero in the bottom number)

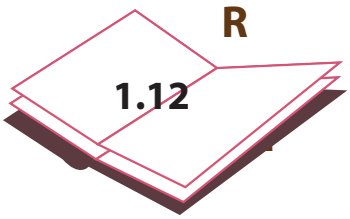
Adding Decimals

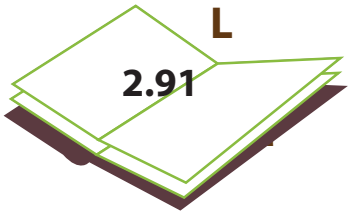
- To add decimal numbers, first write down the numbers, one under the other, so that the decimal point is lined up.
- Then add zeros, so that the numbers all have the same length.
- Finally, we can add the numbers using column addition, and the decimal point should be added to our final sum.

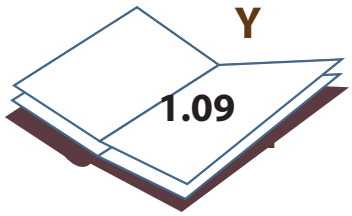


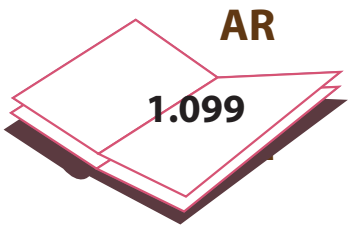
ORDERING DECIMALS

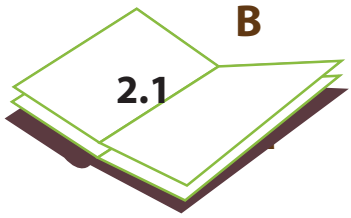
Order the decimal numbers on the books from largest to smallest, then use the letters to answer the question below.

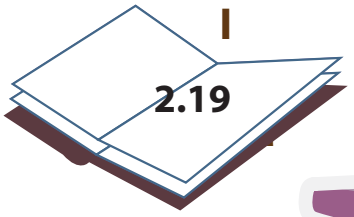


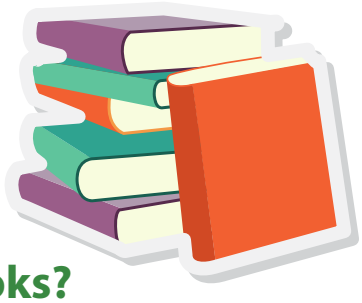












What is the place that houses books?

_____

TENTHS PLACE

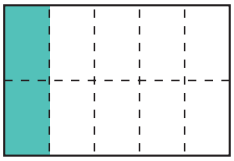
A **decimal** is a number that contains a decimal point.
Digits can be placed to the left and right of a decimal point to show numbers greater than one or less than one.
The decimal point is placed to the right of the ones place.

tenths
↓
0.7
↑
decimal point

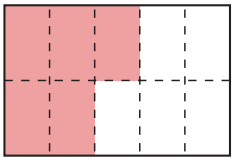
The first digit to the right of the decimal point is in the **tenths place**

The decimal **0.7** is equal to **seven tenths**, or $\frac{7}{10}$.

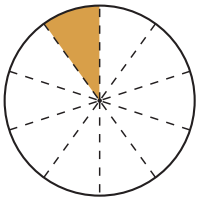
What fraction of the shape has been colored?
Write the fraction and its equivalent **decimal**



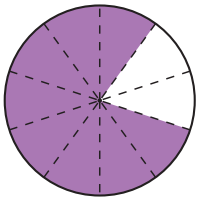
$\frac{2}{10}$ = 0.2



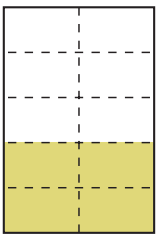
$\frac{\quad}{\quad}$ = ☐



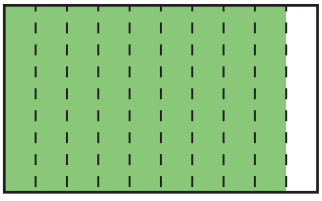
$\frac{\quad}{\quad}$ = ☐



$\frac{\quad}{\quad}$ = ☐



$\frac{\quad}{\quad}$ = ☐



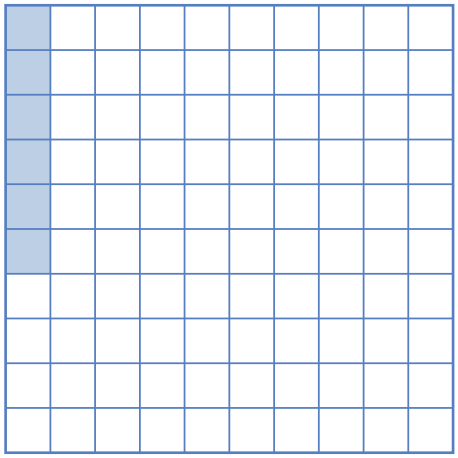
$\frac{\quad}{\quad}$ = ☐

HUNDREDS PLACE

tenths
↓
0.07
↑
hundredths

The second digit to the right of the decimal point is in the **hundredths place**.

The decimal **0.07** is equal to **seven hundredths** or $\frac{7}{100}$.



The square has 100 equal parts.
What part of the square is shaded?
Write the answer as a decimal.

_____

Convert each fraction to a decimal.

$\frac{4}{100}$ = .04 $\frac{9}{100}$ = ____ $\frac{5}{100}$ = ____ $\frac{8}{100}$ = ____

$\frac{1}{100}$ = ____ $\frac{2}{100}$ = ____ $\frac{7}{100}$ = ____ $\frac{6}{100}$ = ____

Convert each decimal to a fraction.

0.05 = $\frac{\quad}{\quad}$ 0.01 = $\frac{\quad}{\quad}$ 0.08 = $\frac{\quad}{\quad}$ 0.03 = $\frac{\quad}{\quad}$

ADDING DECIMALS

- *Solve the following addition problems by rewriting each expression vertically and solving. Remember to line up the decimal places when writing the problem vertically.*

$16.2 + 9.05$ $2.513 + 19.61$ $24.9+5.73$

$$\begin{array}{r} 16.20 \\ +\ \ 9.05 \\ \hline 25.25 \end{array}$$

$72.52 + 0.214$ $2.83 + 1.994$ $243.1 + 3.07$

$1.203 + 16.48$ $14.63 + 12.9$ $10.5 + 3.481$

$37.53 + 22.8$ $1.358 + 250.2$ $0.53 + 64.095$

SUBTRACTING DECIMALS

- *Solve the following subtraction problems by rewriting each expression vertically and solving. Remember to line up the decimal places when writing the problem vertically.*

2.032-0.3

$$\begin{array}{r} 2.032 \\ -\ 0.3 \\ \hline 1.732 \end{array}$$

3.95-1.326

12.02-9.1

8.63-2.4

24.2-15.37

4.351-3.811

42.32-0.813

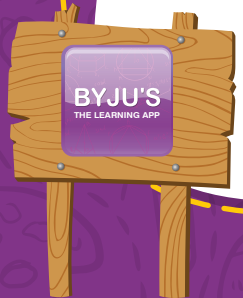
6.17-1.8

78.2-13.069

1.24-1.035

7.634-6.1

10.42-3.2



ROUNDING DECIMALS

- *For the decimals given, write out the name of the number's last place value.*

4.253 thousandths	12.02	95.408
0.021	10.5	8.506
8.52	9.321	50.2
89.8	4,512.3	88.22

- *For the decimals given, round off each number to the place value listed above its row. In the last row, round off to the underlined place value.*

Tenths

8.231 8.2	45.128	0.981	2.012	16.061

Hundredths

8.2561 8.26	66.2135	0.8646	7.9843	52.1143

Thousandths

0.8643 0.864	6.5127	0.2155	7.4541	1.8950

Mixed

45.1952 45.20	0.2315	81.0053	90.550	0.0186