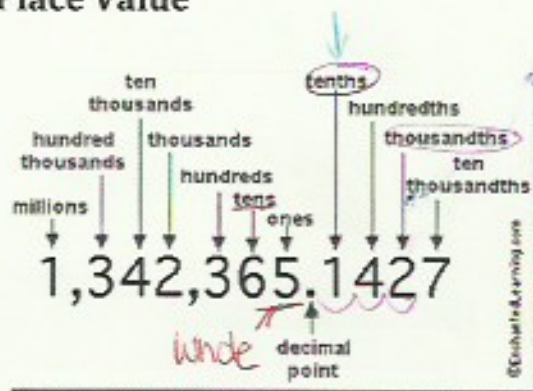


Unit 1 Decimals-Review

Place Value



1,322.82

Say/Write

1,322.82
One thousand three hundred
Twenty-two and eighty two

Hundredths

Convert decimal to mix number

0.1 as a fraction $\frac{1}{10}$

1.322 as a fraction $\frac{322}{1000}$
simplify

Place in order

3.44, 45.1, 3.42

LG (least to greatest)

3.42, 3.44, 45.1

GL (greatest to least)

45.1, 3.44, 3.42

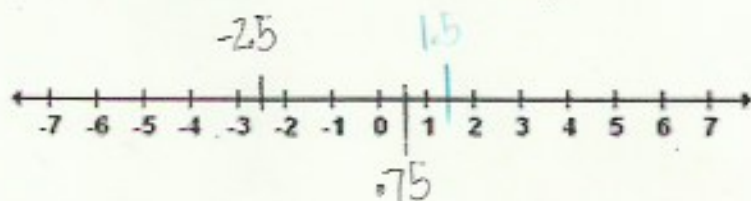
Round to the nearest... 1322.82

Tenth: 1322.8

Ten: 1320

Whole Number: 1323

Find a decimal on a number line



Adding Decimals

Ex) $23.456 + 133.22$

$$\begin{array}{r} 23.456 \\ + 133.22 \\ \hline 156.676 \end{array}$$

- ✓ Step one: Align the decimal
- ✓ Step two: Bring the decimal down
- ✓ Step three: Normally Add (right to left) and find the sum or subtract (right to left) and find the difference

Subtracting Decimals

Ex) $198.22 - 23.456 \rightarrow$

$$\begin{array}{r} 198.220 \\ - 23.456 \\ \hline 174.764 \end{array}$$

Multiply Decimals

$$\begin{array}{r} 2.4 \times 3.17 \text{ longest} \\ \begin{array}{r} 2 \\ 3.172 \\ \times 2.41 \\ \hline 1268 \\ 6340 \\ \hline 7.608 \end{array} \end{array}$$

- ✓ **Step One:** Set up with the longest number on top
- ✓ **Step Two:** Multiply Normally and find the product (right to left, don't forget the zero in the second column)
- ✓ **Step three:** Count the number of spaces from the decimal to the right for both number and add them
- ✓ **Step Four:** On final answer start decimal on the right and move it to the left the total number counted on *Step three*

$$\begin{array}{ccc} 96 & \div & 2 = 48 \\ \uparrow & & \uparrow \\ \text{dividend} & & \text{divisor} \quad \text{quotient} \end{array}$$

$$\begin{array}{r} 48 \leftarrow \text{quotient} \\ \text{divisor} \rightarrow 2 \overline{) 96} \leftarrow \text{dividend} \end{array}$$

Dividing Decimals

$$\begin{array}{r} 1.56 \div 1.2 \\ \uparrow \quad \uparrow \\ \text{dividend} \quad \text{divisor} \end{array} \quad \begin{array}{r} 01.3 \\ 1.2 \overline{) 1.56} \\ \underline{-12} \\ 36 \\ \underline{-36} \\ 0 \end{array}$$

Step 1: Set the equation up

Step 2:

- If the **divisor** has a decimal move it to the right until it becomes a whole number, move the decimal in the dividend an equal amount of times.
- If the dividend has a decimal but the divisor doesn't move the decimal up and divide normally

$$156 \div 0.12$$

$$\begin{array}{r} 01,300 \\ 12 \overline{) 156.00} \\ \underline{12} \\ 36 \\ \underline{36} \\ 00 \\ \underline{00} \\ 00 \end{array}$$

- If the divisor has a decimal but the dividend doesn't, remember that every Number has a decimal at the right; create a decimal, move it as many times as you did for the divisor and write a "0" as a place holder

Step three: Move the decimal up
Step Four: Divide Normally and find the quotient

Fraction-Review

Multiply Fraction:

$$4 \div \frac{4}{12} \times \frac{3}{8} = 3$$

$$3 \div \frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$$

OR

$$4 \div \frac{4}{12} \times \frac{3}{8} = \frac{1}{3} \times \frac{3}{8} = \frac{3}{24} = \frac{1}{8}$$

$$\frac{3}{24} \xrightarrow{-3} \frac{1}{8}$$

Step One: Look for ways to simplify

- You can simplify across, crisscross (butterfly cross), or up and down

Step two: Multiply across and find the product

Step three: SIMPLIFY if possible

Dividing Fractions:

$$3 \div \frac{4}{3} \div \frac{1}{9}$$

K
p
e
c
e
p
r
o
c
a
r
e

$$\frac{4}{3} \times \frac{9}{1} = \frac{4}{1} \times \frac{3}{1} = \frac{12}{1}$$

Step One- Look for ways to simplify (refer to step one in multiplying fractions)

Step Two- find the reciprocal (opposite) of the second fraction

Step Three- Multiply the two fractions together (refer to multiplying fractions)

Adding/Subtracting Fractions

Step One- Find the Least common denominator (Consider what factors into both of them)

Step Two- Add/Subtract Across the numerator and leave the denominator the same

Ex) $\frac{3}{4} + \frac{4}{12} \rightarrow \text{LCD} = 12$

$$\frac{3 \times 3}{4 \times 3} = \frac{9}{12} + \frac{4}{12} = \frac{13}{12} = 1 \frac{1}{12}$$

how many parts you have

↓
numerator

denominator

↑
how many parts of the whole

Ex) $\frac{2}{15} - \frac{1}{5} \rightarrow \text{LCD} = 15$

$$\frac{1 \times 3}{5 \times 3} = \frac{3}{15} - \frac{2}{15} = \frac{1}{15} = \frac{1}{15}$$

Powers of 10

10^1	10	10	ten to the power of one
10^2	10×10	100	ten squared *
10^3	$10 \times 10 \times 10$	1000	ten cubed *
10^4	$10 \times 10 \times 10 \times 10$	10,000	ten... of four
10^5	$10 \times 10 \times 10 \times 10 \times 10$	100,000	ten... of five

Trick: The index (power) tells how many zeros there are ex. $10^1 = 10$

Multiply/Divide by 0.1 and 0.01

Multiplying by 0.1 and 0.01

Convert 0.1 to a fraction \rightarrow $\frac{1}{10}$

0.1 X 3 = $\overset{\text{tenth place}}{\underset{1}{\begin{array}{r} 3 \\ \times 0.1 \\ \hline 0.3 \end{array}}}$

$$\frac{1}{10} \times 3 = \frac{1}{10} \times \frac{3}{1} = \frac{3}{10}$$

$$3 \div 10 = 10 \overline{) 3.0} \\ \underline{30} \\ 0$$

0.1 X 13 = $\overset{13}{\underset{1}{\begin{array}{r} 13 \\ \times 0.1 \\ \hline 1.3 \end{array}}}$

$$\frac{1}{10} \times 13 = \frac{1}{10} \times \frac{13}{1} = \frac{13}{10} = 1\frac{3}{10}$$

$$13 \div 10 = 10 \overline{) 13.0} \\ \underline{10} \\ 30 \\ \underline{30} \\ 0$$

0.1 X 1.3 = $\overset{1.3}{\underset{1}{\begin{array}{r} 1.3 \\ \times 0.1 \\ \hline 0.13 \end{array}}}$

$$\frac{1}{10} \times 1.3 = \frac{1}{10} \times \frac{1.3}{1} = \frac{1.3}{10}$$

$$1.3 \div 10 =$$

$$10 \overline{) 1.30} \\ \underline{10} \\ 30 \\ \underline{30} \\ 0$$

Trick:

Move decimal once to the left.

Convert 0.01 to a fraction \rightarrow $\frac{1}{100}$

0.01 X 3 = $\overset{\text{hundredths place}}{\underset{1}{\begin{array}{r} 3 \\ \times 0.01 \\ \hline 0.03 \end{array}}}$

$$\frac{1}{100} \times 3 = \frac{1}{100} \times \frac{3}{1} = \frac{3}{100}$$

$$3 \div 100 = 100 \overline{) 3.00} \\ \underline{300} \\ 0$$

0.01 X 13 = $\overset{13}{\underset{1}{\begin{array}{r} 13 \\ \times 0.01 \\ \hline 0.13 \end{array}}}$

$$\frac{1}{100} \times 13 = \frac{1}{100} \times \frac{13}{1} = \frac{13}{100}$$

$$13 \div 100 =$$

$$100 \overline{) 13.00} \\ \underline{100} \\ 300 \\ \underline{300} \\ 0$$

0.01 X 1.3 = $\overset{1.3}{\underset{1}{\begin{array}{r} 1.3 \\ \times 0.01 \\ \hline 0.013 \end{array}}}$

$$\frac{1}{100} \times 1.3 = \frac{1}{100} \times \frac{1.3}{1} = \frac{1.3}{100}$$

$$1.3 \div 100 =$$

$$100 \overline{) 1.300} \\ \underline{100} \\ 300 \\ \underline{300} \\ 0$$

Trick: Move decimal twice to the left

THE INEQUALITY SYMBOLS

- < means "less than"
- > means "greater than"
- ≠ means "not equal to"
- ≤ means "less than OR equal to"
- ≥ means "greater than OR equal to"

a) $3.45 < 3.47$

b) $15,33 > 1,533$

c) $5^2 = 25 \rightarrow 5 \times 5 = 25$

d) $10^8 > 10,000,000 \rightarrow 10^8 \rightarrow$ index means 8 zeros $\rightarrow 10,000,000$

e) $0.013 = 0.13 \rightarrow$ trick: move decimal twice to the left

f) $0.14 > .014 \rightarrow$ same trick as e.

g) $10 \times 8 = 80 \rightarrow 8 \div \frac{1}{10} = \left(\frac{8}{1}\right) \times \left(\frac{10}{1}\right) = \frac{80}{1} = 80$

h) $9,000 > 90 \rightarrow$ trick: move decimal three times to the right

Rounding to a decimal Place

Round to one decimal place: $3.4567 = 3.6$

$45.12 = 45.1$

$5. = 5.0$

Round to two decimal places: $4.555 = 4.56$

$6.32 = 6.32$

$222.892 = 222.89$

