Unit 4

Operations with Decimals

Lesson 7

Comparing Decimals and Fractions

CCSS: 6.NS.B.3

UNIT 4: ESSENTIAL QUESTIONS

01. How do decimals and fractions relate to one another?

02. What do decimals describe?

03. In what ways do decimals apply to real-world problems?

LEARNING OBJECTIVES

- Apply knowledge of operations to convert decimals (up to the ten-thousandths place) to fractions.

- Apply knowledge of operations to convert fractions to decimals (up to the ten-thousandths place).

Warm-Up: Comparing Decimals to Fractions

Find the fraction equivalent forms of the following decimal:

0.135

Warm-Up: Comparing Decimals to Fractions

ANSWERS

Find the fraction equivalent forms of the following decimal:

0.135

$$0.135 \rightarrow \frac{135}{1{,}000} \xrightarrow[\div 5]{\div 5} \boxed{\frac{27}{200}}$$

I Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$1.2, \frac{91}{100}, \frac{1}{2}, 0.15, \frac{1}{20}$

Converting Decimals to Fractions

Step 1: Find the place value of the last digit in the decimal. (*Tenths, Hundredths, Thousandths...*)

Step 2: The place value of the last digit in the decimal becomes the demonenator. (*Tenth -> 10, Hundredths -> 100, Thousandths -> 1,000*).

Step 3: The number(s) behind the decimal become the numerator.

Step 4: Reduce to least common denomenator.

I Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$1.2, \frac{91}{100}, \frac{1}{2}, 0.15, \frac{1}{20}$

1.2

Converting Decimals to Fractions

Step 1: Find the place value of the last digit in the decimal. (*Tenths, Hundredths, Thousandths...*)

Step 2: The place value of the last digit in the decimal becomes the demonenator. (*Tenth -> 10, Hundredths -> 100, Thousandths -> 1,000*).

Step 3: The number(s) behind the decimal become the numerator.

Step 4: Reduce to least common denomenator.

I Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$1.2, \frac{91}{100}, \frac{1}{2}, 0.15, \frac{1}{20}$

$1.2 \Rightarrow 1\frac{}{10}$

Converting Decimals to Fractions

Step 1: Find the place value of the last digit in the decimal. (*Tenths, Hundredths, Thousandths...*)

Step 2: The place value of the last digit in the decimal becomes the demonenator. (*Tenth -> 10, Hundredths -> 100, Thousandths -> 1,000*).

Step 3: The number(s) behind the decimal become the numerator.

Step 4: Reduce to least common denomenator.

I Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$1.2, \frac{91}{100}, \frac{1}{2}, 0.15, \frac{1}{20}$

$1.2 \Rightarrow 1\frac{2}{10}$

Converting Decimals to Fractions

Step 1: Find the place value of the last digit in the decimal. (*Tenths, Hundredths, Thousandths...*)

Step 2: The place value of the last digit in the decimal becomes the demonenator. (*Tenth -> 10, Hundredths -> 100, Thousandths -> 1,000*).

Step 3: The number(s) behind the decimal become the numerator.

Step 4: Reduce to least common denomenator.

I Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$1.2, \frac{91}{100}, \frac{1}{2}, 0.15, \frac{1}{20}$

$1.2 \Rightarrow 1\frac{2}{10} \overset{\div 2}{\underset{\div 2}{\Rightarrow}} 1\frac{1}{5}$

Converting Decimals to Fractions

Step 1: Find the place value of the last digit in the decimal. (*Tenths, Hundredths, Thousandths...*)

Step 2: The place value of the last digit in the decimal becomes the demonenator. (*Tenth -> 10, Hundredths -> 100, Thousandths -> 1,000*).

Step 3: The number(s) behind the decimal become the numerator.

Step 4: Reduce to least common denomenator.

I Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$1.2, \frac{91}{100}, \frac{1}{2}, 0.15, \frac{1}{20}$

$1\frac{1}{5}$ 0.15

Converting Decimals to Fractions

Step 1: Find the place value of the last digit in the decimal. (*Tenths, Hundredths, Thousandths...*)

Step 2: The place value of the last digit in the decimal becomes the demonenator. (*Tenth -> 10, Hundredths -> 100, Thousandths -> 1,000*).

Step 3: The number(s) behind the decimal become the numerator.

Step 4: Reduce to least common denomenator.

I Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$1.2, \frac{91}{100}, \frac{1}{2}, 0.15, \frac{1}{20}$

$1\frac{1}{5}$ 0.15 $\Rightarrow$ $\frac{\quad}{100}$

Converting Decimals to Fractions

Step 1: Find the place value of the last digit in the decimal. (*Tenths, Hundredths, Thousandths...*)

Step 2: The place value of the last digit in the decimal becomes the demonenator. (*Tenth -> 10, Hundredths -> 100, Thousandths -> 1,000*).

Step 3: The number(s) behind the decimal become the numerator.

Step 4: Reduce to least common denomenator.

I Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$1.2, \frac{91}{100}, \frac{1}{2}, 0.15, \frac{1}{20}$

$1\frac{1}{5} \quad 0.15 \Rightarrow \frac{15}{100} \Rightarrow 1\frac{1}{5}$ (÷ 2 above, ÷ 2 below)

Converting Decimals to Fractions

Step 1: Find the place value of the last digit in the decimal. (*Tenths, Hundredths, Thousandths...*)

Step 2: The place value of the last digit in the decimal becomes the demonenator. (*Tenth -> 10, Hundredths -> 100, Thousandths -> 1,000*).

Step 3: The number(s) behind the decimal become the numerator.

Step 4: Reduce to least common denomenator.

I Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$1.2, \frac{91}{100}, \frac{1}{2}, 0.15, \frac{1}{20}$

$1\frac{1}{5}$ 0.15 $\Rightarrow$ $\frac{15}{100}$

Converting Decimals to Fractions

Step 1: Find the place value of the last digit in the decimal. (*Tenths, Hundredths, Thousandths...*)

Step 2: The place value of the last digit in the decimal becomes the demonenator. (*Tenth -> 10, Hundredths -> 100, Thousandths -> 1,000*).

Step 3: The number(s) behind the decimal become the numerator.

Step 4: Reduce to least common denomenator.

I Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$1.2, \frac{91}{100}, \frac{1}{2}, 0.15, \frac{1}{20}$

$1\frac{1}{5}$ 0.15 $\Rightarrow$ $\frac{15}{100}$ $\div 5$ $\Rightarrow$ $\frac{3}{20}$ $\div 5$

Converting Decimals to Fractions

Step 1: Find the place value of the last digit in the decimal. (*Tenths, Hundredths, Thousandths...*)

Step 2: The place value of the last digit in the decimal becomes the demonenator. (*Tenth -> 10, Hundredths -> 100, Thousandths -> 1,000*).

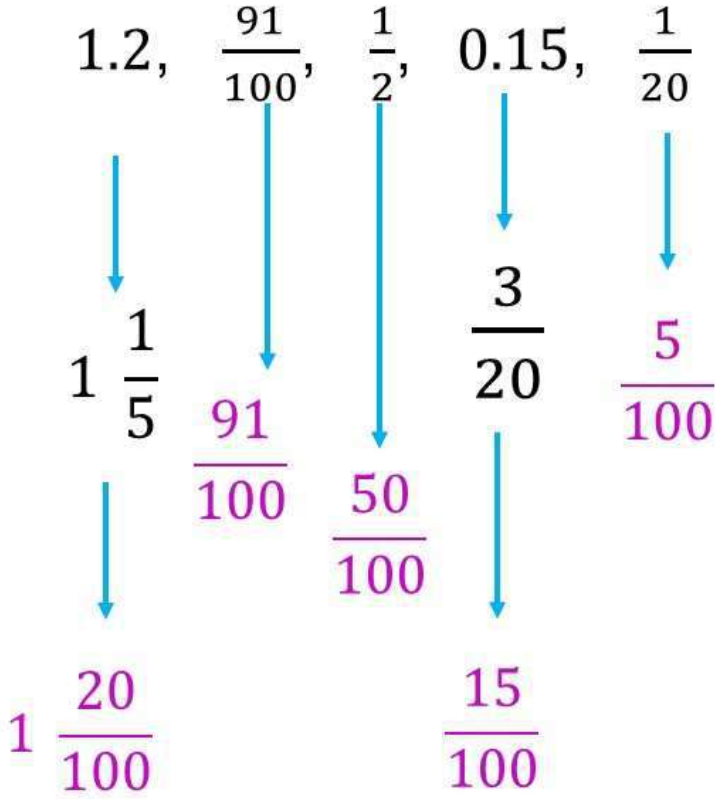
Step 3: The number(s) behind the decimal become the numerator.

Step 4: Reduce to least common denomenator.

I Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$1.2, \quad \frac{91}{100}, \quad \frac{1}{2}, \quad 0.15, \quad \frac{1}{20}$



Now that all the values are in fraction form, let's go ahead and solve for the common denominator for all the fractions.

For this example, the common denominator is 100.

$5 \times 20 = 100$
$100 \times 1 = 100$
$2 \times 50 = 100$
$20 \times 5 = 100$

I Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$1.2, \quad \frac{91}{100}, \quad \frac{1}{2}, \quad 0.15, \quad \frac{1}{20}$

$1\frac{20}{100} \quad \frac{91}{100} \quad \frac{50}{100} \quad \frac{15}{100} \quad \frac{5}{100}$

Now that all the fractions hav the same denominator, let's go ahead and order them from least to greatest.

$\frac{5}{100}\left(\frac{1}{20}\right)$ $\frac{15}{100}(0.15)$ $\frac{50}{100}\left(\frac{1}{2}\right)$ $\frac{91}{100}$ $1\frac{20}{100}\ (1.2)$

Least value **Greatest value**

I Do: Comparing Decimals to Fractions

ANSWERS

Please order the following from least to greatest numerical value:

$1.2, \quad \frac{91}{100}, \quad \frac{1}{2}, \quad 0.15, \quad \frac{1}{20}$

$\frac{5}{100}\left(\frac{1}{20}\right)$ $\quad$ $\frac{15}{100}(0.15)$ $\quad$ $\frac{50}{100}\left(\frac{1}{2}\right)$ $\quad$ $\frac{91}{100}$ $\quad$ $1\frac{20}{100}$ (1.2)

Least value $\qquad$ **Greatest value**

We Do: Comparing Decimals to Fractions

Order the following from least to greatest in numerical value:

$0.6, \frac{1}{5}, 1.5, \frac{4}{3}$

Least value **Greatest value**

We Do: Comparing Decimals to Fractions

ANSWERS

Order the following from least to greatest in numerical value:

$0.6, \frac{1}{5}, 1.5, \frac{4}{3}$

$\frac{1}{5}$ (0.6) $\frac{4}{3}$ 1.5

Least value **Greatest value**

You Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$\frac{82}{100}$, 0.2, $\frac{13}{20}$

Least value **Greatest value**

You Do: Comparing Decimals to Fractions

ANSWERS

Please order the following from least to greatest numerical value:

$\frac{82}{100}$, 0.58, 0.2, $\frac{13}{20}$

0.2	0.58	$\frac{13}{20}$	$\frac{82}{100}$
Least value			**Greatest value**

Review/ Recap

Converting Decimals to Fractions

Step 1: Find the place value of the last digit in the decimal. (*Tenths, Hundredths, Thousandths...*)

Step 2: The place value of the last digit in the decimal becomes the demonenator. (*Tenth -> 10, Hundredths -> 100, Thousandths -> 1,000*).

Step 3: The number(s) behind the decimal become the numerator.

Step 4: Reduce to least common denomenator.

QZ/EXIT TICKET

QZ TIME

We Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$0.125, \frac{3}{10}, \frac{2}{3}, 0.89, \frac{19}{20}$

Least value **Greatest value**

We Do: Comparing Decimals to Fractions

ANSWERS

Please order the following from least to greatest numerical value:

$0.125, \frac{3}{10}, \frac{2}{3}, 0.89, \frac{19}{20}$

0.125	$\frac{3}{10}$	$\frac{2}{3}$	0.89	$\frac{19}{20}$
Least value				**Greatest value**

We Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$0.75, \frac{3}{8}, 0.54, \frac{3}{20}$

A. $\frac{3}{8}, 0.54, \frac{3}{20}, 0.75$

B. $\frac{3}{8}, \frac{3}{20}, 0.54, 0.75$

C. $\frac{3}{20}, \frac{3}{8}, 0.54, 0.75$

D. $0.54, \frac{3}{8}, \frac{3}{20}, 0.75$

We Do: Comparing Decimals to Fractions

ANSWERS

Please order the following from least to greatest numerical value:

$0.75, \frac{5}{7}, \frac{3}{8}, 0.54, \frac{3}{20}$

A. $\frac{3}{8}, 0.54, \frac{3}{20}, 0.75$

B. $\frac{3}{8}, \frac{3}{20}, 0.54, 0.75$

C. $\frac{3}{20}, \frac{3}{8}, 0.54, 0.75$

D. $0.54, \frac{3}{8}, \frac{3}{20}, 0.75$

You Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$0.3, \frac{4}{10}, \frac{63}{100}, \frac{9}{20}$

A. $\frac{63}{100}, \frac{9}{20}, 0.3, \frac{4}{10}$

B. $\frac{4}{10}, \frac{9}{20}, \frac{63}{100}, 0.3$

C. $\frac{9}{20}, \frac{4}{10}, 0.3, \frac{63}{100}$

D. $0.3, \frac{4}{10}, \frac{9}{20}, \frac{63}{100}$

You Do: Comparing Decimals to Fractions

Please order the following from least to greatest numerical value:

$0.3, \frac{4}{10}, \frac{63}{100}, \frac{9}{20}$

A. $\frac{63}{100}, \frac{9}{20}, 0.3, \frac{4}{10}$

B. $\frac{4}{10}, \frac{9}{20}, \frac{63}{100}, 0.3$

C. $\frac{9}{20}, \frac{4}{10}, 0.3, \frac{63}{100}$

D. $0.3, \frac{4}{10}, \frac{9}{20}, \frac{63}{100}$